

# AGRICULTURAL OUTLOOK

Economic Research Service  
United States Department of Agriculture

June 1993

FILE COPY

**PEACHES**

A SEASONAL  
SLICE OF THE  
FRUIT MARKET



# AGRICULTURAL OUTLOOK



Cover photo:  
Courtesy of California Tree  
Fruit Agreement

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The next issue of *Agricultural Outlook* (AO-198) is scheduled for mailing on July 6, 1993. If you do not receive AO-198 by July 23, call the managing editor at (202) 219-0494 (be sure to have your mailing label handy). The full text of AO-198 will also be distributed electronically; additional information on this is available at (202) 720-5505.

# News of 1993/94 Crop Estimates, Farm-Based Industrial Products, the Peach Industry, and Meat Inspection

## Commodity Overview

**Crop Estimates for 1993/94:** USDA's first official projections for 1993/94 indicate smaller world grain crops than in 1992/93, but larger world output of oilseeds and cotton. Strong 1993/94 wheat production gains are expected in Eastern Europe and Australia, but not enough to offset declines elsewhere.

In the U.S., 1993/94 projections indicate wheat and cotton output will be up from 1992/93, but rice and corn production down 3 and 10 percent. A smaller soybean crop is also expected for 1993, mainly due to yields dropping back to trend from the record 1992 level.

## Agricultural Economy

**New industrial age:** Increased demand for environmentally friendly products is accelerating investment in farm-based industrial products, and new technologies are lowering their costs. In July 1993, USDA's Economic Research Service will launch a new publication, *Industrial Uses of Agricultural Materials*, to provide economic data and analysis on these developing markets.

The Federal government is fostering collaboration between government scientists who are discovering new uses for agricultural materials, and those in industry who can commercialize the new products. Among recent market successes: inks with a soybean oil base.

## Commodity Spotlight

**Peaches in season:** California—the nation's top peach producer—is reporting a good crop as the 1993 season for fresh peaches gets underway. Unlike strawberries, grapes, and other perishable fruits now available nearly year-round, peaches have preserved a strongly seasonal marketing pattern. Like these other fruits, peaches are being imported during the off-season, mostly from Chile—but not in so large a volume.



Exports are a bright spot in the U.S. peach industry. Going mostly to Canada and Mexico, exports of peaches (including nectarines) have risen steadily from 30 million pounds in 1970 to 156 million in 1992. The outlook for the 1990's is for continued growth in exports.

## World Agriculture & Trade

**Russian reform:** Policymakers in the Russian Federation are likely to continue on a partial and gradual approach to agricultural reform through the end of 1993. This approach has resulted in policy inconsistency and slowed the emergence of private producers and markets. In 1992, policymakers introduced several major reforms—they deregulated food and farm-gate prices, and permitted the establishment of a small number of private farms and several private commodity exchanges. Price deregulation was the most effective of these reforms. However, by mid-1992, the government reintroduced some fiscal subsidies to crop and livestock producers. Also, the 1992 reforms weakened, but did not eliminate, state procurement of farm commodities.

## Environment & Resources

**Cheaper ethanol:** New technologies are delivering less expensive ethanol and other plant-based alternatives to petroleum-based fuels. In inflation-adjusted terms, the cost of producing ethanol derived from corn has dropped 34 percent between 1980 and 1992, through the adoption of energy-saving innovations.

Ethanol lowers carbon monoxide emissions in vehicles when blended with gasoline, can reduce ozone-forming emissions as an ether blend, and can reduce dependence on imported oil. The use of ethanol as a transportation fuel in the U.S. grew from insignificance in 1977 to nearly 900 million gallons in 1991. Despite the lowering of costs, production of ethanol is still largely dependent on Federal support. Over the longer term, production on a large enough scale to substitute for gasoline is likely to come only from organic material (biomass) other than corn, such as agricultural residues, municipal solid wastes, yard and wood wastes, recycled newspapers, and crops grown expressly for energy content.

## Food Safety

**Modernizing meat inspection:** The Federal government has stepped up activities aimed at improving the U.S. meat and poultry inspection system, following the recent disease outbreak caused by the bacterium *Escherichia coli* 0157:H7.

Medical costs and productivity losses from foodborne disease caused by major bacterial pathogens, including *E. coli* 0157:H7, are over \$2.5 billion a year, according to the Economic Research Service. USDA has announced a "two-track" strategy aimed at improving current safety programs while designing the programs of the future. This plan addresses each link in the chain from farm to table—the live animal, the slaughter process, the processing plant, the food-service process, and consumer education.

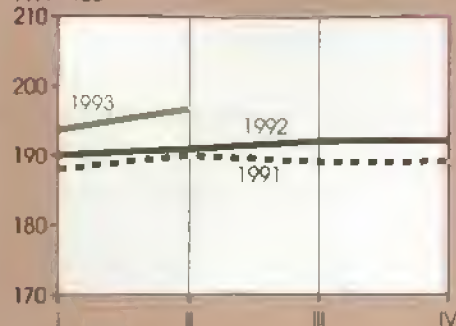


## Agricultural Economy

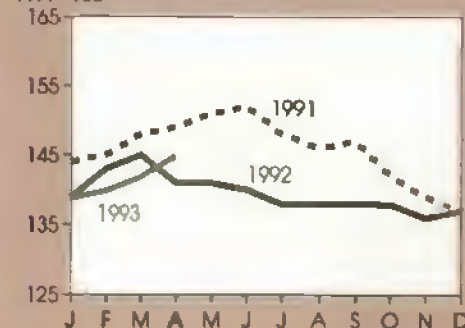
## Prime Indicators

Index of prices paid by farmers

1977=100

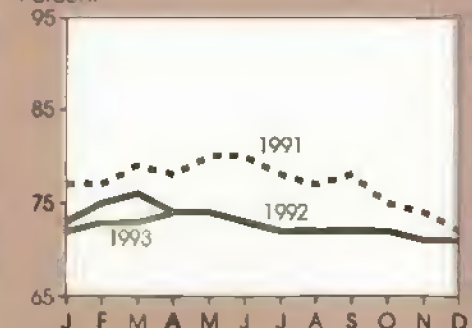
Index of prices received by farmers<sup>1</sup>

1977=100

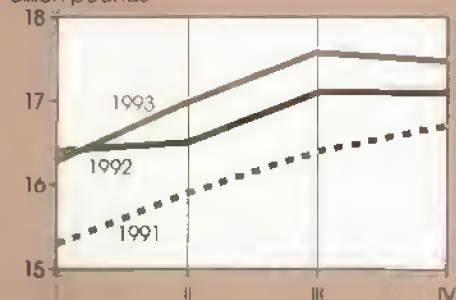


Ratio of prices received/prices paid

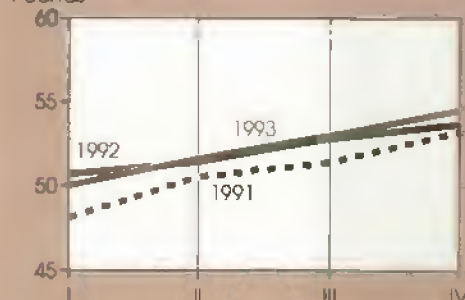
Percent

Total red meat & poultry production<sup>2</sup>

Billion pounds

Red meat & poultry consumption, per capita<sup>2,3</sup>

Pounds

Cash receipts from livestock & products<sup>4</sup>

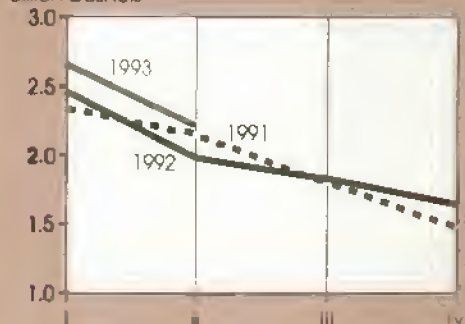
\$ billion

Corn beginning stocks<sup>5</sup>

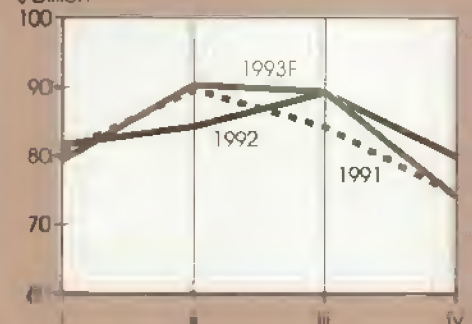
Billion bushels

Corn disappearance<sup>5</sup>

Billion bushels

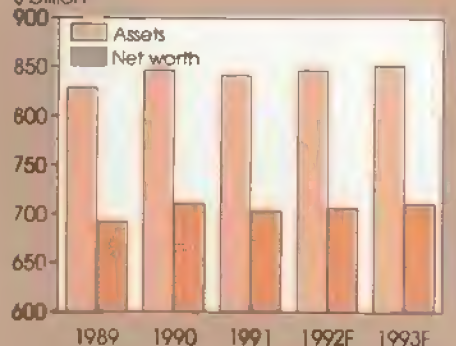
Cash receipts from crops<sup>4</sup>

\$ billion



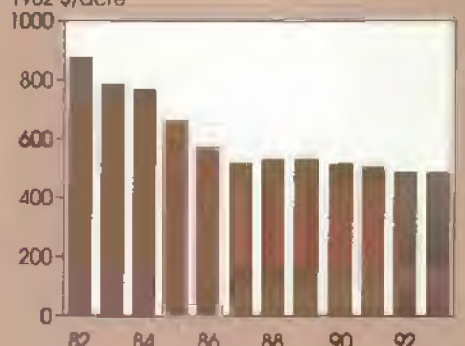
Farm sector net worth

\$ billion



Average real value of farm real estate

1982 \$/acre



Farm value/retail food costs

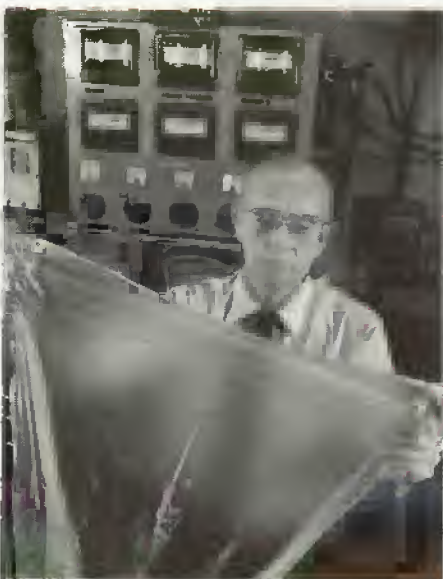
Percent



<sup>1</sup> For all farm products. <sup>2</sup> Calendar quarters. Future quarters are forecasts for livestock, corn, and cash receipts. <sup>3</sup> Retail weight. <sup>4</sup> Seasonally adjusted annual rate. <sup>5</sup> Sept.-Nov.; II=Dec.-Feb.; III=Mar.-May.; IV=June-Aug. Marketing years ending with year indicated. F=forecast.

<sup>3</sup> Retail weight. <sup>4</sup> Seasonally adjusted annual rate.





Agricultural Research Service, USDA

## Industrial Uses: Tapping the Potential

The development of industrial products from renewable, plant- and animal-based materials will play an increasing role in the evolution of U.S. industry in the coming decades. The Federal government has recently created new institutions that are forming partnerships with industry to speed the development and use of farm-based industrial products.

These efforts are beginning to provide more environmentally sound products for consumers, and expand economic opportunities for rural communities. For farmers, the new products can provide alternatives to government commodity programs.

The 1990 farm legislation cut payment acres used for government income support. According to most forecasters, the 10-year outlook is for real farm income in the U.S. to continue to decline. Commercialization of farm-based industrial products has the potential to increase market-driven demand for agricultural materials and improve the farm income picture.

Starch crops (primarily corn, wheat, and potatoes), kenaf, vegetable oils, and livestock by-products are among the renewable agricultural materials that are currently turned into industrial products. These fuels, fibers, and biodegradable polymers are more environmentally benign than the products they replace, which are made mostly from fossil fuels. Examples of market successes aided by the accelerated research include:

- enzymes to replace phosphates in detergents, and to dispose of leather tanning wastes;
- printing inks based on soybean oil, and
- "Super Sturper," a highly absorbent starch polymer used in fuel filters.

Industrial uses of farm products are making a comeback as public concern about pollution and the environment has intensified and new technologies for processing agricultural materials have become available. Early in the industrial revolution, virtually all industrial inputs were based on plant and animal products. Vegetable oils were used to make paints, varnishes, linoleum, and soaps. Wood was used to make charcoal for smelting iron. And grain alcohol (ethanol) was a key industrial solvent and fuel prior to an 1862 tax on alcohol, both beverage- and industrial-grade.

Around the turn of the century—when environmental pollution was not a major public concern—new technologies began making inexpensive and high-quality products available from nonrenewable fossil fuels. By the mid-1920's, coal and petroleum and their derivatives were rapidly squeezing out agricultural materials, and much of the nation's research funding focused on developing products from fossil fuels. The Institute for Local Self-Reliance estimates that plant-based materials still accounted for about 35 percent of industrial inputs in 1925, but by 1989, that share had dropped to less than 16 percent, mostly for producing paper.

## Public Funding Offsets Private Underinvestment

Government plays a key role in research and development activities generally, and will likely play an especially important role in the development of industrial uses for agricultural products. Market incentives for private research on new industrial uses of agricultural materials are often limited, resulting in underinvestment.

The private sector underinvests because:

- firms cannot capture the profits from their research—*appropriability*;
- the environmental costs of competing products are not reflected in their prices;
- farm program subsidies dilute farmers' incentive for demand-creating research; and
- firms may value near-term payoffs more highly than society.

Let's look at each of these in turn.

*Appropriability* becomes an issue when research and development lead to knowledge with wide-ranging applications, and result in products that benefit society more than individual businesses. Goods with such properties cannot be profitably merchandised, even though the gains to society may be significant. Firms cannot capture the profits from goods with collective properties. Private goods, on the other hand, allow the owners of the associated property rights or patents to collect the profits.

Hybrid seeds are an example of a private good used as an input in agriculture. Companies selling hybrid seeds capture all the profits from their research and development because farmers purchase new seed each time a crop is planted. But seeds of self-pollinating plants like wheat are an example of a good with collective properties because, once a new variety is released, growers can retain a portion of their harvest for use in subsequent years.

## Agricultural Economy

### Fuels and Paper Are Among New Industrial Uses of Farm Products

Source	Primary products	Current uses	Potential new or higher value uses
Animal fats, vegetable oils	Fuels	Experimental diesel fuel	Large-scale use for bus and equipment fuel for clean air attainment
Starch crops (primarily corn)	Fuel and octane additive	Mixed 1:10 with gas	Increased use in gasoline; ETBE octane enhancer
Forest products	Composite materials, chemicals	Tanning agents, adhesives, alcohol	Wide range of chemicals, plastics, synthetic rubber
Kenaf	Short and long fibers	Poultry litter, small-scale specialty paper, absorbent materials	Newsprint, paper products, fiberboard
Livestock by-products	Hides, fat, bone, and blood	Medicines, sutures, plastic films	Plastics, food wrappings, large-scale use for medicines, photographic film, industrial chemicals
Starch and protein from crops	Biodegradable polymers	Limited use in degradable polymers	Extensive use in new high-performance polymers

Adapted from Hudson and Harsch, *New Industrial Uses, New Markets for U.S. Crops: Status of Technology and Commercial Adoption*, 1992.

Government support of research and development to promote goods with collective properties is extensive in agriculture. For wheat, the Federal government is funding basic research in genetics, applied research in the production of higher yielding and other improved varieties, and testing of production in different climates, and is promoting adoption through USDA's Extension Service. The government is also investigating the use of new wheat varieties for specific industrial applications—such as biodegradable polymers.

*Environmental externalities* of products involve environmental costs and benefits that affect society but that do not enter the profit calculations of firms. For petroleum-based plastics and other products having negative externalities, the price consumers pay does not include environmental impacts, waste disposal costs, and other costs associated with these products.

One approach to government intervention would be to impose a tax on plastics to cover disposal and environmental costs. Without such a tax, environmental externalities act as a barrier to entry of more "environmentally friendly" alternatives, like starch-based polymers. Many of these polymers are being made from

corn, wheat, and potato starch. Starch-based polymers are fully degradable, but their cost is currently greater than the cost of petroleum-based plastics.

Another intervention route is for government to support research and development activities in order to reduce the private costs of starch-based polymer production. The government has increased research on polymer production, partly in response to the Marpol Treaty, which prohibits discharging plastic waste at sea—beginning in 1988 for commercial vessels and in 1994 for government ships. The U.S. Army, USDA, and private industry are jointly implementing a large-scale research effort to develop biodegradable polymers to replace petroleum-based plastics for food containers and utensils.

*The structure of Federal farm programs* means that deficiency payments decline when market prices rise. So, farmers have less incentive to fund demand-creating research than if their income depended solely on the market.

The government, however, has an incentive to fund projects developing new uses because demand-creating innovations can cut the costs of farm-income-support programs. A technological break-

through, for example, in the production of starch-based polymers would increase market demand for corn or wheat and reduce program payments.

Similarly, innovations in the development and use of new crops that are economically viable alternatives to program crops could also reduce the costs of farm-income-support programs. For example, if the demand for kenaf increased sharply, its price would rise relative to the prices of program crops. Some farmers would then shift acres away from program crops to grow kenaf. With less acreage in the programs, Federal payments would decline.

*Short planning horizons* lead some private firms to underinvest in research and development because they value near-term profits more highly than society. Also, risk-averse firms may reduce research and development below what is socially optimal. Studies differ on whether these risk- and time-preference differences exist and whether they justify government intervention.

Kenaf is an example in which market limitations may constrain the development of a "new use" agricultural product. Kenaf is a nonwood, fiber crop which is especially attractive for manufacturing



newsprint and other fiber-based products. Commercial-scale tests have shown that paper derived from kenaf is stronger and whiter, is capable of sharper photo reproduction, and has better ink adherence than newsprint derived from wood pulp. Furthermore, the energy needed to pulp kenaf is 15-25 percent lower than for southern pine, and has fewer wastewater problems.

However, because kenaf is bulky, high transportation costs limit initial processing to areas near where it is grown. The economics of developing products like kenaf for industrial uses is a catch-22. Farmers are not likely to produce a new crop without an assured market, and industry is not likely to retool, or in this case relocate paper pulping mills, to process kenaf without an assured supply.

"Short-termism" in business planning has many dimensions. The industrial structure and corporate ownership patterns in the U.S. tend to support investments with higher short-term payoffs compared with the economies of Japan and Germany. The funding rate of pre-commercial research and development in Japan and the EC is higher than in the U.S.

Through efforts like the MITI and Key Technologies programs, Japan has promoted partnerships "downstream" from basic research—among business, universities, and government. Similarly, the European Community has promoted collaborative research and development under the Framework Program.

Government-induced structural barriers as well as standard business practices may be factors limiting investment in pre-commercial research and development in the U.S. For example, U.S. laws keep ownership of banks and nonfinancial corporations separate, creating pressure for higher short-run payoffs to repay loans. This is not the case in many other countries.

However, the public efforts to boost technology transfer in Europe and Japan have had mixed results. There is broad agree-

ment among economists that the U.S. must develop programs in which government does not try to pick technological winners, but rather promotes financial support of research and development activities that are economically efficient—stepping in only where there is a market failure.

## ***New Institutions Promote Adoption***

Since the 1940's, agricultural research and development have helped boost productivity by 230 percent. However, the government share of this research and development has trended downward, from about 50 percent in the 1960's and

## **New Economic Report on Industrial Uses**



Quality paper is being produced from kenaf. Animal fats and oilseeds are supplementing petrochemicals in producing biodiesel and other fuels. And biodegradable packaging materials are being made from corn starch.

In July 1993, USDA's Economic Research Service will introduce a new Situation and Outlook Report titled *Industrial Uses of Agricultural Materials*, providing economic data and analysis on these new markets.

Published semiannually, in July and December, the new publication will cover several product categories:

- *starches and carbohydrates* from corn, wheat, and potatoes;
- *fats and oils* including tallow, lard, chicken fat, fish oils, and oils from soybeans, sunflowers, cottonseed, rapeseed, flax, castors, crambe, and lesquerella;
- *fibers* from traditional as well as new sources, such as kenaf;
- *animal products* such as hides, bones, and feathers;
- *forest products* from timber by-products and recycled wood wastes;
- *natural plant products, natural rubber, and resins* including taxol and other plant-derived specialty chemicals, and rubber from guayule.

The new publication is supported by the Department of Energy's Office of Industrial Technologies and by USDA's AARC Center, Cooperative State Research Service, Forest Service, Agricultural Research Service, and Office of Energy.

For more information about the series, call Greg Gajewski or Lewrene Glaser at (202) 219-0085. Or call 1-800-999-6779 to subscribe to *Industrial Uses of Agricultural Materials Situation and Outlook* (stock #IUS). Domestic subscriptions are \$16 (foreign \$20).

## Agricultural Economy

1970's to less than 45 percent in the 1980's, and likely will continue to drop. Many analysts believe that to get the biggest "bang" for each research dollar, more Federal support is needed at the applied, development, and demonstration (precommercial) stages to move the basic research advances into the marketplace.

Congress set up the Alternative Agricultural Research and Commercialization (AARC) Center under the 1990 farm bill, to support precommercial development of nonfood and nonfeed uses of agricultural materials. Through the AARC Center, Congress is trying to bridge both a funding gap and an institutional gap. The institutional gap arises because the link is weak between scientists making discoveries and the firms marketing new products. The funding gap arises in part because risk remains high and costs tend to increase sharply at the precommercial stage. So capital is often lacking to develop technologies emerging from the laboratory but not yet ready for commercial prototyping.

DuPont's expenditures to develop nylon, for example, increased by about a factor of 4 between the basic and applied research stages and the development and commercial production stages. The point between development and commercial production is where technology transfer often fails. The AARC Center is especially situated to help private industry bridge the funding gap and bring "new use" commercial technologies to the marketplace. The AARC Center and private firms share funding risks and share in the returns. The AARC Center funds projects on a competitive basis and only when there is a strong financial commitment from the private partner.

The AARC center is also establishing two regional centers this year to enhance regional and grassroots participation in the development of new uses for agricultural materials. The host institutions, chosen through a competitive process, will be the Kansas Board of Agriculture and the Northern Regional Agricultural Utilization Consortium, which currently includes Minnesota, North Dakota, and South Dakota.

Through public-private partnerships, USDA's Office of Agricultural Materials is also helping to bridge this gap for products as wide ranging as lubricants and polymers from vegetable oils, to newsprint and bond paper from kenaf, to thermally insulating textiles from milkweed.

The Technology Transfer Act of 1986 promotes technology transfer by authorizing Cooperative Research and Development Agreements (CRADA's) between government scientists and private companies to develop particular discoveries. These agreements give the private companies exclusive rights to develop government discoveries for a given time period, but no transfer of public funds is involved.

Since 1986, scientists at USDA's Agricultural Research Service have established over 300 such agreements with various companies to commercialize technology arising from their research, while USDA's Forest Service has established 50 agreements. USDA is among the lead Federal departments in setting up CRADA's.

[Doug Beach and Greg Gajewski (202) 219-0085] **AQ**

### Upcoming Reports from USDA's Economic Research Service

The following are June release dates for summaries of the ERS reports listed. Summaries are issued at 3 p.m. Eastern time.

#### June

- 3 Western Hemisphere
- 11 Tobacco
- 16 Sugar & Sweeteners Yearbook
- 17 Africa & the Middle East
- 18 Agricultural Outlook
- 22 Agricultural Resources
- 23 Dairy
- 28 Industrial Uses of Agricultural Materials
- 30 China

## Field Crops Overview

### Domestic Outlook—First Forecasts for 1993/94

*USDA's first official projections for U.S. and global 1993/94 crops were released in the May World Agricultural Supply and Demand Estimates report.*

### 1993/94 Wheat Stocks To Rebound

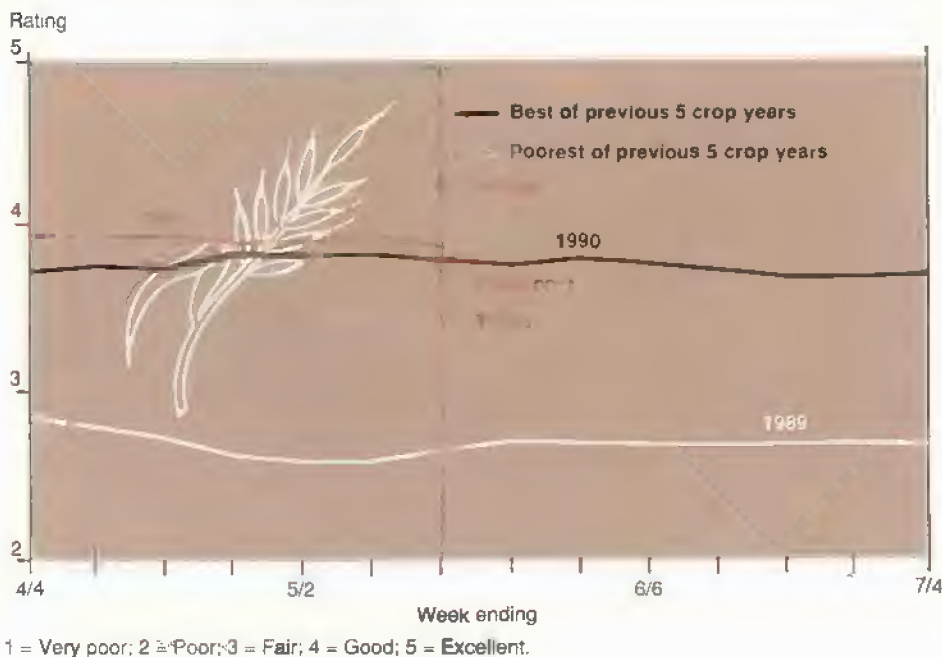
U.S. wheat output, boosted by an abundant winter wheat crop, is projected up in 1993/94. With total wheat supplies expected to be the largest since 1990/91, and total use down slightly, ending stocks are expected to increase. As a result, the season-average price received by farmers is expected to drop markedly from the 1992/93 projected average.

- Total wheat output is forecast up 2 percent in 1993/94, at 2.5 billion bushels. Harvested area is 3 percent higher, and the winter wheat yield, at 40.8 bushels per acre, is forecast to be the second highest on record. Supplies are expected up 3 percent.
- Total wheat use in 1993/94 is expected down 2 percent, at 2.4 billion bushels, as lower exports more than offset an expected rise in domestic use. Exports are expected down due to heightened competition from Argentina, Australia, Eastern Europe, and Canada.
- Wheat stocks at the end of 1993/94 are projected at 658 million bushels, up 29 percent from the forecast carryin level. U.S. farm prices are expected in the range of \$2.55-\$2.95 per bushel, compared with \$3.25 in 1992/93.

Total 1993/94 winter wheat production, expected up almost 13 percent from the previous season, is boosting the forecast for total U.S. wheat output. Abundant



## Winter Wheat Conditions Are Best In 5 Years



moisture is the main factor behind the winter wheat increase, although cool and cloudy weather in April delayed crop progress.

- High winter wheat yields are expected in the major producing states. The Kansas yield is forecast to be the fourth highest on record, while the Texas crop is expected to tie for third highest.
- Because of cool, wet weather throughout the spring, the winter wheat crop was only 32 percent headed as of May 16, far behind the 5-year average of 54 percent. In Kansas, the top producing state, only 15 percent of the crop was headed.
- Despite the lag in progress, over 20 percent of the crops in California, Colorado, Kansas, Oregon, and South Dakota were rated excellent as of May 16.

### Corn Production To Be Lower . . .

Corn output is expected smaller in 1993/94, due to lower area and a return to trend yield from the 1992/93 record level. Total use is expected to match production, and ending stocks will be little changed from forecast carryin stocks.

- Corn production in 1993/94, at 8.5 billion bushels, is forecast down more than 10 percent from last year's record. Harvested area is expected down, due largely to the 5-point increase in the ARP. Yield—based on trend—is forecast at 122.7 bushels per acre, down almost 9 bushels from last year's record.
- Total use is expected marginally higher in 1993/94, at 8.5 billion bushels, than in the current year. Both FSI and feed and residual use are expected higher, but exports are expected down, due largely to lower world corn trade.
- Ending stocks are projected to be virtually unchanged in 1993/94, at 2.1 billion bushels, and the season-average price is forecast in the range

of \$1.85-\$2.25 per bushel in 1993/94, near this year's \$2-\$2.15.

Growers have had labor and inputs lined up, but wet fields delayed corn planting progress for the 1993/94 crop in most of the major producing states. Substantial delay can shift plantings to soybeans and other crops.

- Only 40 percent of the U.S. crop had been planted as of May 16, far behind the 78-percent average.
- Progress was furthest behind in the Corn Belt. Only 41 percent and 20 percent of the Illinois and Iowa crops had been planted, compared with 86- and 84-percent averages.
- In Georgia and Texas, drier conditions allowed planting progress to be near normal, and planting was almost complete by mid-May.

### . . . & Soybean Output Also Forecast Down

A smaller soybean crop is expected for 1993 than in 1992, mainly due to a return to trend yield from the record 1992 level. Total disappearance is also forecast down, but not by as much as supplies, dropping the projected ending stocks level. Lower expected stocks are supporting a potential increase in the season-average price.

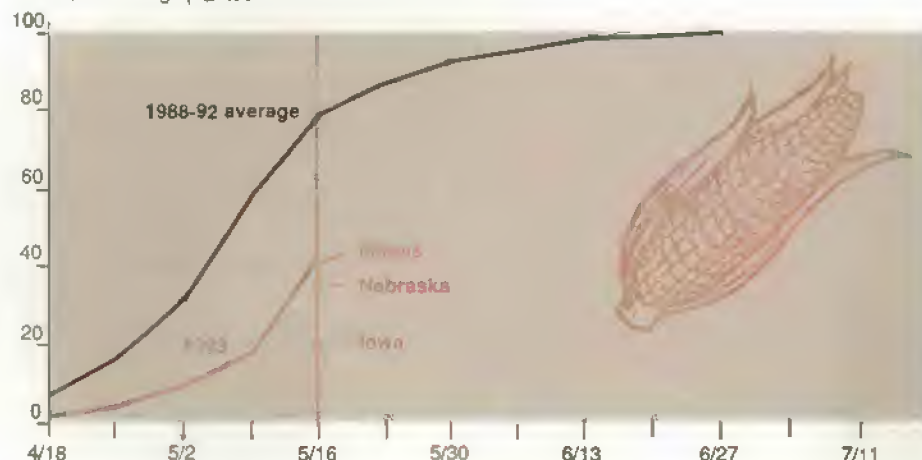
- Soybean output, at 2 billion bushels, is forecast down nearly 7 percent in 1993. Harvested area is expected down slightly, and the average yield is forecast at 35.1 bushels per acre, down 2.5 bushels from the previous season's record.
- Total use, at 2.1 billion bushels, is expected down almost 3 percent in 1993/94, due mainly to a 45-million-bushel drop in exports. Crush is projected unchanged as modest growth in domestic meal use is offset by lower meal exports.

## Agricultural Economy

### Corn and Soybean Plantings Are Later Than Average

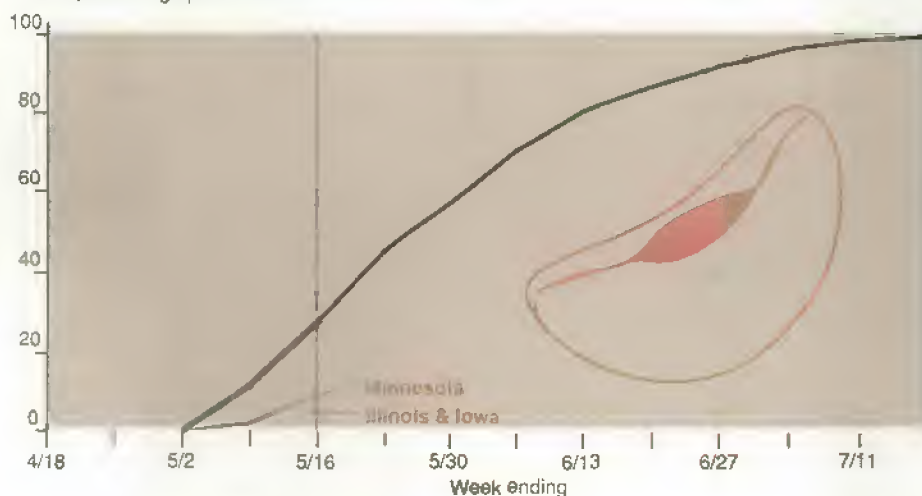
#### Corn

Percent of acreage planted



#### Soybeans

Percent of acreage planted



- Soybean ending stocks are projected down nearly 14 percent, at 280 million bushels, and the season-average price is expected within the range of \$5.25-\$6.25 per bushel, compared with this year's \$5.50.

Wet weather has delayed planting of the 1993 soybean crop. Only 9 percent of the U.S. soybean crop had been planted as of May 16, well behind the 5-year average of 29 percent.

- As of May 16, only 5 percent of Iowa and Illinois soybeans had been planted, although 33 and 44 percent

of the soybean crop is usually planted by then in those states.

- In contrast, drier conditions in the Southeast resulted in planting progress which about matched the 5-year average in most states in that region.

### Rice Supply To Set Record

Despite a projected decline in rice production, total supplies in 1993/94 are expected higher due to large carryin stocks.

But coupled with a forecast rise in total use, ending stocks are expected down slightly compared with the 1992/93 projection. Even with tighter ending stocks—which are expected to decline nearly 4 percent—low world prices are expected to weigh on the U.S. season-average price.

- Rice production in 1993, at 173 million cwt, is forecast down more than 3 percent from the past season, due to a higher ARP and a return to trend yield. But coupled with large beginning stocks, the projected supply would set a new record.
- Total rice use is projected up 4 percent in 1993/94, to a record 180.5 million cwt, with increases projected for both domestic and residual use and exports.
- The 1993/94 season-average price is forecast in the range of \$4.50-\$6 per cwt, compared with the \$5.80-\$6 expected for this year, as world prices remain low.

As of mid-May, rice seeding for the 1993 crop averaged almost 2 weeks behind normal and nearly 3 weeks behind last year, due to excessively wet fields.

- Nationally, rice planting was 51 percent complete as of May 16, compared with the 5-year average of 75 percent.
- In Arkansas, planting was only 40 percent complete as of May 16, compared with an average of 71 percent.
- Mississippi planting was 36 percent complete, compared with the state's 78-percent average.

### Cotton Ending Stocks Expected Up

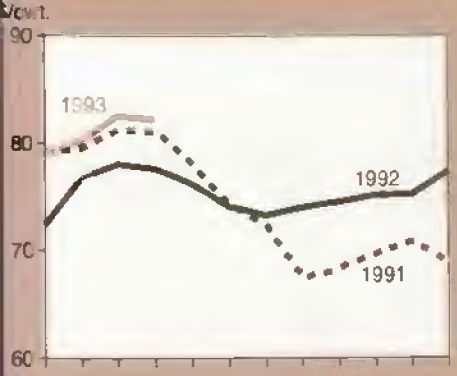
U.S. cotton production in 1993 is expected up sharply from last season, partly due to the lower ARP. With supplies outweighing the projected increase in total use, ending stocks for 1993/94 are expected up sharply, and at the highest level since 1988/89.



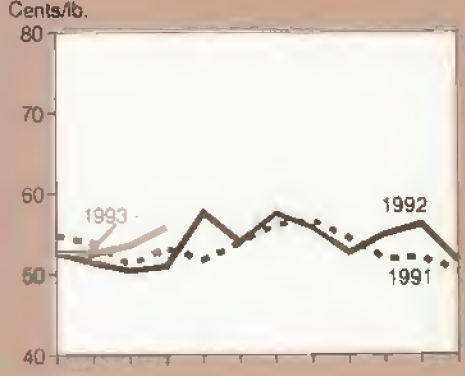
Commodity Market Prices

Agricultural Economy

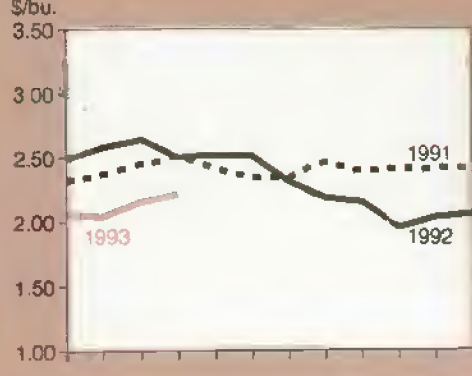
Choice steers, Nebraska



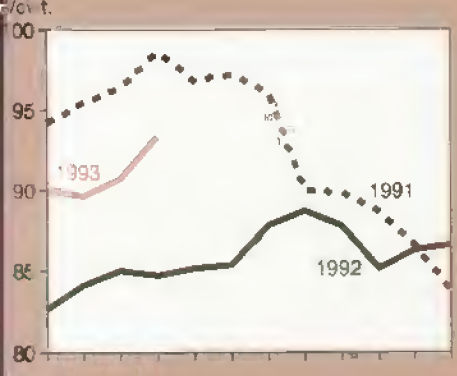
Broilers, 12-city average



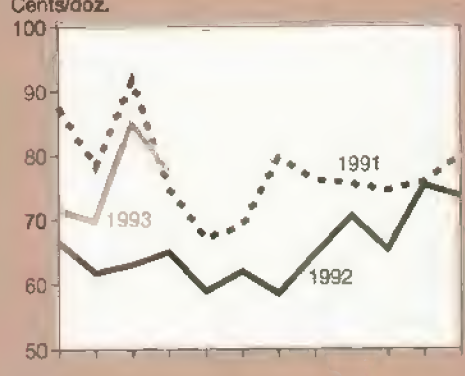
Corn, Central Illinois<sup>1</sup>



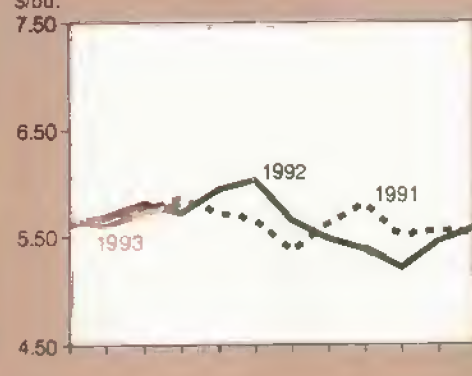
Medium steers, Oklahoma City<sup>2</sup>



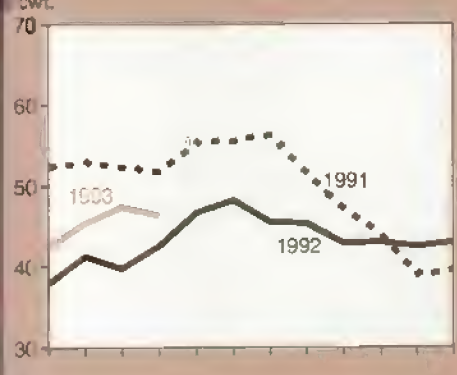
Eggs, New York<sup>3</sup>



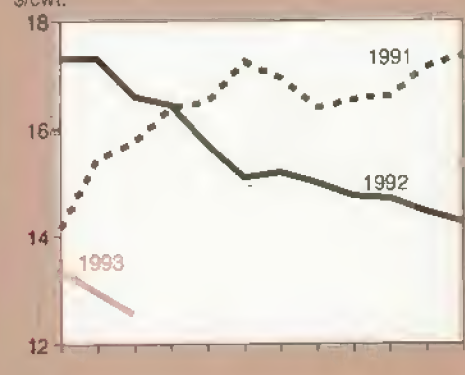
Soybeans, Central Illinois<sup>4</sup>



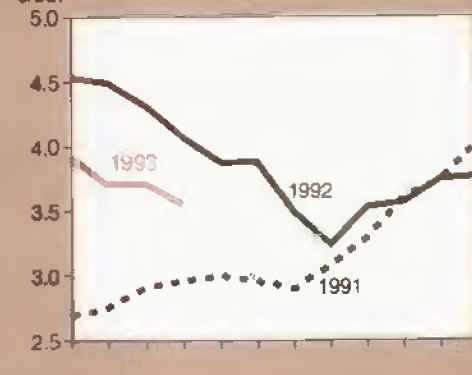
Barrows and gilts, 6 markets, Omaha



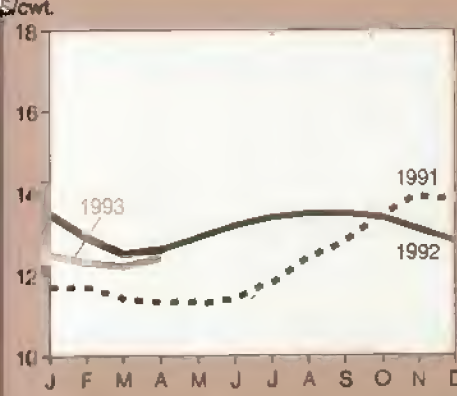
Milled rice, SW Louisiana<sup>5</sup>



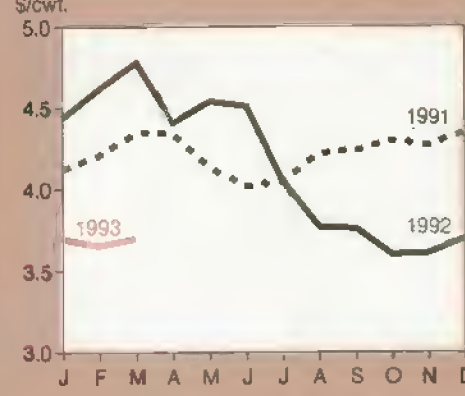
Wheat, Kansas City<sup>6</sup>



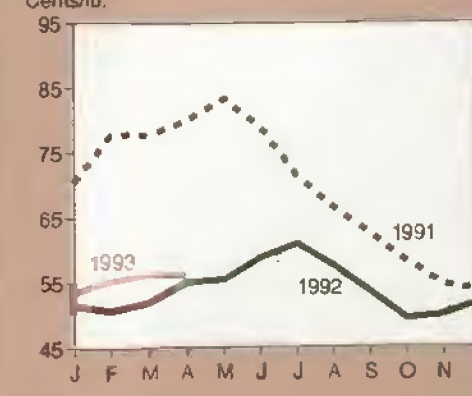
All Milk



Sorghum, Kansas City



Cotton, average spot market



<sup>1</sup>No. 2 yellow. <sup>2</sup>600-700 lbs. medium no.2. <sup>3</sup>Grade A large. <sup>4</sup>No. 1 yellow. <sup>5</sup>U.S. No.2 long-grain. <sup>6</sup>No. 1 HRW.

## Agricultural Economy

### U.S. Field Crops—Market Outlook at a Glance

	Area		Yield	Output	Total supply	Domestic use	Exports	Ending stocks	Farm price
	Planted	Harvested							
	— Mil. acres —	Bu/acre							
Wheat									
1992/93	72.3	62.4	39.4	2,459	2,999	1,148	1,340	510	3.25
1993/94	72.3	64.5	38.9	2,508	3,093	1,210	1,225	658	2.55-2.95
Corn									
1992/93	79.3	72.1	131.4	9,479	10,583	6,745	1,725	2,113	2.00-2.15
1993/94	76.5	69.3	122.7	8,500	10,618	6,950	1,550	2,118	1.85-2.25
Sorghum									
1992/93	13.3	12.2	72.8	884	937	483	275	180	1.80-1.95
1993/94	11.2	10.0	66.0	660	840	433	275	132	1.70-2.20
Barley									
1992/93	7.8	7.3	62.4	456	597	360	80	157	2.03
1993/93	7.7	7.1	57.0	405	582	355	80	147	1.85-2.25
Oats									
1992/93	8.0	4.5	65.6	295	472	355	.6	111	1.33
1993/94	8.1	4.4	55.5	245	421	310	.5	106	1.15-1.55
Soybeans									
1992/93	59.3	58.4	37.6	2,197	2,477	1,387	765	325	5.50
1993/94	59.3	58.2	35.1	2,045	2,373	1,373	720	280	5.25-6.25
			Lb/acre		— — — — — Mil. cwt (rough equiv.) — — — — —				\$/cwt
Rice									
1992/93	3.17	3.13	5,722	179.1	212.1	97.5	76.0	38.6	5.80-6.00
1993/94	3.13	3.06	5,655	173.0	217.6	100.5	80.0	37.1	4.50-6.00
			Lb/acre		— — — — — Mil. bales — — — — —				¢/lb
Cotton									
1992/93	13.2	11.1	699	16.2	19.9	9.9	5.7	4.4	54.60*
1993/94	13.4	12.4	680	17.5	21.9	10.3	8.0	5.7	**

Based on May 11, 1993 World Agricultural Supply and Demand Estimates; U.S. marketing years for exports.

\*Weighted-average price for August-April; not a season average.

\*\*USDA is prohibited from publishing cotton price projections.

See table 17 for complete definition of terms

- Total cotton production in 1993, projected at 17.5 million bales, is up nearly 8 percent from 1992/93, while supplies are forecast up almost 10 percent. If realized, the forecast supply would be the highest since 1966.
- Total use is expected up 4 percent, with increases forecast for both domestic use and exports. The increase in use is not enough to offset the rise in supplies, however, and ending stocks are forecast up nearly 30 percent, to 5.7 million bales.

Although rains caused planting delays in April, planting progress for the 1993 cotton crop was just a few days behind normal in mid-May.

- Nationally, 54 percent of the cotton crop was planted as of May 16, just behind the 5-year average of 58 percent.
- The greatest delays occurred in Mississippi and Tennessee, which were 27 and 22 points behind average.

- In contrast, Georgia, North Carolina, South Carolina, and Texas were ahead of schedule.

[Joy Harwood (202) 219-0840]

## Global Market: Outlook for 1993/94

The first projections for 1993/94 wheat and coarse grain supply and use by country are introduced in this report. For rice, oilseeds, and cotton, only total world, foreign, and U.S. projections are incorporated this month; country breakouts for these commodities will be made in July.

### Wheat Imports To Fall

Strong 1993/94 wheat production gains are expected in Eastern Europe and Australia, but not enough to offset even larger forecast production declines in the former Soviet Union (FSU), China, and the European Community (EC). Despite lower output in major producing countries, global imports are projected to decline slightly. While imports by the FSU and China are projected up, reduced imports by India, South Africa, and others are offsetting the increases.

Large stocks in the EC and Canada, and increased production in smaller exporting countries, are expected to lead to strong competition for the contracting world market and lower export prices in 1993/94. The lower volume of projected global imports, and large supplies in competing countries, are expected to result in reduced U.S. exports.

- World wheat production is projected down 2 percent; foreign production also falls 2 percent to 481 million tons.
- Eastern European output is projected at 32.5 million tons, up from 26.6 million this year as it recovers from drought.
- Production in the FSU is expected to fall 10 million tons, because unfavorable weather at planting



prevented some area from being sown last fall, and adding area of lower yielding spring wheat will make up only part of the shortfall. But FSU imports are projected up only 1.5 million, limited by the availability of cash.

- China's output is forecast down 5 million as some switching to more profitable crops occurs. But China's imports rise only 2 million tons, as large stocks are drawn down.
- Implementation of CAP reforms in the EC reduced wheat area, but large carryin keeps projected exports at 21 million tons.
- Canadian exports are projected to rise 8 percent, Australia's rise 27 percent, and Argentina's are up 9 percent.
- U.S. exports in 1993/94 are projected at 33 million tons, down 11 percent.
- U.S. sales to India, South Africa, and Eastern Europe are expected to decline sharply because, unlike 1992/93, those countries' supplies are expected to be generally adequate to meet domestic use.
- U.S. exports in 1992/93 increased, in part because Canada and Australia harvested a poor-quality crop. Assuming normal weather, both countries will be able to expand exports of quality grain, reducing expected U.S. market share from 37 percent in 1992/93 to 33 percent in 1993/94.

### Coarse Grain Trade Also Down

World corn trade is projected down sharply in 1993/94; little change is seen in trade of barley or sorghum. World corn production also is projected to decline in 1993/94. Most of this production drop is expected in the U.S., but

corn harvests are also projected down slightly in other major producing countries, including China and the EC, where area planted to both corn and barley will drop as CAP reforms take effect.

- Projected global corn trade falls 10 percent to only 56.2 million tons, the lowest since 1985/86.
- Bigger crops reduce imports in Eastern Europe and southern Africa. The Republic of South Africa is projected to import no corn, compared with 2.3 million tons in 1992/93.
- FSU corn imports continue to decline, limited by availability of financing. Higher purchases of feed wheat are expected to reduce South Korea's corn imports by 6 percent.
- China is expected to remain the lead competing corn exporter, with expected corn exports of 8.5 million

tons, compared with 9 million tons in 1992/93.

- With lower import demand, U.S. corn exports are projected down 11 percent to 39.5 million tons, the lowest since 1986/87.
- Barley imports are likely to fall in Saudi Arabia and the FSU, the two largest importers, but the decline is offset by higher import demand in North Africa.
- With continued large carryin, EC barley exports are maintained at 7.5 million tons, despite reduced area and production. And, as its barley area expands and production is projected to recover, Canadian barley exports increase to 3 million from 2.5 million in 1992/93.

World Grain Trade Declines In 1993/94

	Year <sup>1</sup>	Production	Exports <sup>2</sup>	Consumption <sup>3</sup>	Carryover
Million tons					
Wheat	1992/93	557.5	100.3	551.2	134.7
	1993/94	548.8	99.7	554.7	128.7
Corn	1992/93	528.3	62.3	504.2	102.3
	1993/94	502.1	56.2	512.2	92.2
Barley	1992/93	164.7	16.0	164.6	30.5
	1993/94	162.5	16.2	166.1	26.8
Rice	1992/93	350.8	14.5	354.0	52.2
	1993/94	347.5	NA	354.0	45.7
Oilseeds	1992/93	226.8	38.5	184.7	22.7
	1993/94	228.3	NA	NA	NA
Soybeans	1992/93	116.7	31.2	96.1	20.4
	1993/94	NA	NA	NA	NA
Soybean meal	1992/93	76.0	28.2	75.5	3.0
	1993/94	NA	NA	NA	NA
Soybean oil	1992/93	17.1	4.3	17.1	1.9
	1993/94	NA	NA	NA	NA
Million bales					
Cotton <sup>4</sup>	1992/93	82.5	26.6	84.4	38.5
	1993/94	87.5	27.0	87.0	38.8

<sup>1</sup> Marketing years are: wheat, July-June; coarse grains and corn, October-September; oilseeds, soybeans, meal, and oil, local marketing years except Brazil and Argentina adjusted to October-September; cotton, August-July. <sup>2</sup> Rice trade is for the second calendar year. <sup>3</sup> Crush only for soybeans and oilseeds. <sup>4</sup> Cotton exports are revised to include trade among the 12 countries of the former Soviet Union and the 3 Baltic states.

NA = Not available.

## Agricultural Economy

### Rice Trade To Slip Slightly

World rice import demand for 1993/94 is projected to decline for the second consecutive year on the strength of projected good harvests in the major consuming countries.

- World trade is projected at 14.1 million tons for the aggregate of local marketing year 1993/94, down fractionally from 14.13 in 1992/93 and 15.1 in 1991/92.
- Global 1993/94 consumption is projected steady at 354 million tons, but foreign consumption drops fractionally.
- World production is projected down 3.3 million tons to 347.5 million tons (milled basis), almost all of which is a decline in foreign production, down 3.1 million.

### Oilseed Production Projected Higher

Gains in foreign oilseed production in 1993/94 are projected to more than compensate for a sharp drop in U.S. soybean production. Rapeseed production, reduced by European drought and poor Canadian weather in 1992/93, should increase in 1993/94. Larger output of sunflowerseed is also expected, as Spain expands production and output recovers in Argentina. Abundant soybean supplies and strong competition from South America at the onset of the 1993/94 U.S. marketing year will constrain 1993/94 U.S. exports of soybeans and soybean meal.

- World oilseed production is projected at a record 228.3 million tons, up about 1 percent, with China and Canada likely to show the largest year-to-year gains.

- U.S. soybean exports are projected to decline from 20.8 million tons to 19.6 million tons in 1993/94, while soybean meal exports drop from 6 to 5.8 million tons.

### 1992/93 U.S. Soybean Exports Still Strong

In 1992/93, reduced world supplies of other oilseeds and expansion of world demand boosted U.S. soybean exports, despite a record soybean outturn in South America. Favorable weather in Brazil continues to maintain record yields.

- Brazil's soybean production increased to a record 21.8 million tons, up 14 percent from 1991/92.
- The U.S. share of the 1992/93 soybean market is estimated at 66.7 percent, up from 65.9 percent in 1991/92, and the U.S. share of the soybean meal market also rises fractionally.


### Cotton Output & Use Expected Up

World cotton production is projected to rise in 1993/94 as major producing countries return to more normal yields after the weather- and pest-induced declines of the current season. The currently low prices should spur global consumption, but gains continue to be concentrated in large cotton producing nations. The largest consumption gains, however, are expected for low-cost textile producers.

Global trade is expected to grow only slightly, as demand by traditional cotton importers continues to contract because profit margins remain low for high-cost textile producers. Overall lower market shares for recent years reflect the addition to global cotton trade, of trade among the 12 countries of the former Soviet Union and the 3 Baltic states.

- World cotton output is projected to expand 6 percent.
- Use rises more than 3 percent, and at 87 million bales nearly equals production of 87.5 million.
- Global trade is projected up only 2 percent. Much of the gain is foreign. Foreign outturn is forecast up 5.5 percent to 70 million bales, while foreign consumption is projected at 76.7 million bales, up 3 percent.
- Foreign exports are expected to reach 21 million bales, nearly the same as this year.
- Despite continued large foreign shipments, U.S. exports are projected up 300,000 bales to 6 million. And U.S. market share is expected to reach 22 percent, up from the current season, but the second lowest in the last 5 years.

[Carol Whitton (202) 219-0824]

For further information, contact: Sara Schwartz, world wheat; Randy Schnepf, world rice; Edward Allen, domestic wheat; Janet Livezey, domestic rice; Pete Riley, world feed grains; Tom Tice and Jim Cole, domestic feed grains; Nancy Morgan and Jaime Castaneda, world oilseeds; Scott Sanford and George Douvelis, domestic oilseeds; Ken Bowman, world cotton; Bob Skinner and Les Meyer, domestic cotton. World information (202) 219-0820; domestic (202) 219-0840. 



# Livestock, Dairy & Poultry Overview

## Beef Supplies To Grow, Prices To Ease

Beef supplies are forecast to increase and prices to moderate over the summer, following a winter and early spring of tight supplies, resulting in lower consumption levels and record prices. The number of cattle slaughtered in the first quarter was down nearly 2 percent, while production declined over 4 percent. Dressed slaughter weights—averaging 677 pounds—were down 19 pounds.

In the second quarter, improved weather conditions will result in improved rates of weight gain and higher slaughter weights.

- Second-quarter beef production is expected to rise 8 percent from the

first quarter, and nearly 1 percent from a year earlier.

- On April 1, the number of cattle on feed in the 13 quarterly reporting states was second largest on record, 8 percent higher than a year ago.
- Retail beef prices averaged \$2.92 per pound in the first quarter, and rose to \$2.99 in April, 12 cents higher than a year earlier.
- Second-quarter retail beef consumption will be about 16.4 pounds per capita, down 3 percent from a year earlier, but still rising seasonally from the first quarter.
- Fed cattle prices, in the low \$80's per cwt in May, are expected to decline to the mid- to low \$70's in late summer.

Beef imports were up during the first 2 months of 1993, following release of imported beef that had been placed in bonded warehouses in order to avoid exceeding last year's beef import limit. However, imports for 1993 are expected

to be down because of this year's lower beef import limits. Voluntary Restraint Agreements on imports have been negotiated for 1993 with Australia and New Zealand, the major suppliers of imported beef.

- Beef imports in January and February 1993 were 18 percent above last year. Imports for the entire year are forecast to be down 3-4 percent.
- Shipments to Japan were down 6 percent in January and February but are forecast to increase for the year. Japan's import tariff dropped from 60 to 50 percent on April 1.
- Exports to South Korea may decline despite an increase in the minimum amount of beef it will import from all sources in 1993. This year's announced minimum quota, up from 66,000 to 99,000 metric tons, is below last year's 132,000 tons actually shipped into the country, and still well below expected imports in 1993.

## U.S. Livestock and Poultry Products—Market Outlook at a Glance

		Beginning stocks	Production	Imports	Total supply	Exports	Ending stocks	Consumption		Primary market price
								Total	Per capita	
		----- Million pounds -----						----- Pounds -----		\$/cwt
Beef	1992	419	23,086	2,440	25,945	1,324	360	24,261	66.5	75.38
	1993F	360	23,176	2,335	25,871	1,300	350	24,221	65.7	75-79
Pork	1992	388	17,234	645	18,267	407	385	17,475	53.1	43.03
	1993F	385	17,406	670	18,461	410	375	17,676	53.1	43-47
----- Pounds -----										
Broilers	1992	36	20,907	0	20,943	1,489	33	19,421	66.8	52.6
	1993F	33	21,722	0	21,755	1,590	33	20,132	68.6	52-56
Turkeys	1992	264	4,778	0	5,042	171	272	4,599	18.0	60.2
	1993F	272	4,829	0	5,101	182	260	4,659	18.1	59-63
		----- Million dozen -----						----- No. -----		¢/doz.
Eggs*	1992	13.0	5,882.7	4.3	5,899.9	157.0	13.5	5,002.8	235.1	65.4
	1993F	13.5	5,918.5	4.0	5,936.0	160.0	12.0	5,011.7	233.0	72-76

Based on May 11, 1993 World Agricultural Supply and Demand Estimates.

\*Total consumption does not include eggs used for hatching.

F = Forecast.

See tables 10 and 11 for complete definition of terms.

## Agricultural Economy

### Paying for Grazing on Public Lands

Over most of the past decade, the spread has widened between fees charged by the Federal government for grazing cattle on Forest Service (FS) and Bureau of Land Management (BLM) lands, and the indexed value of forage. The 1993 Federal fee, at \$1.86 for a month's forage for one cow, horse, yearling, or five sheep, is lower than the appraised value of similar leased forage on private lands. Two current legislative proposals would more than double the Federal grazing fees.

The fee for grazing on Federal lands is calculated from a base fee of \$1.23 per AUM (forage for a 1,000-pound cow or equivalent for one month), which was set in 1969. The fee has been adjusted annually since then, under provisions of the Public Rangelands Improvement Act (PRIA) from 1978 to 1986, and under a 1986 Executive Order which continued the PRIA formula.

The PRIA formula includes components which measure ability to pay in addition to forage value. Three price indexes are used to adjust the fee: a forage value index, a prices-received index for beef cattle, and a prices-paid index for items used in western livestock production. The forage value index, which tracks grazing fees on comparable private land, has more than doubled since 1970, while the PRIA-calculated fee for public land grazing has increased 32 percent, on average. The actual fees charged by the Federal government have not always matched the PRIA-calculated fees,

because annual change in the fee is restricted to 25 percent, and because a minimum fee of \$1.35 per AUM was set beginning in 1986.

Grazing fee revenues are shared by Federal, state, and local governments according to set formulas. On average, one-fourth of the total fee receipts goes to the Federal treasury; about half of the total goes to the BLM Districts and FS Regions Range Betterment Fund; and about one-fifth goes to state and county governments. Current total Federal fee receipts are about \$33 million. About \$52 million of total Federal rangeland program costs of \$74 million are attributable to livestock grazing.

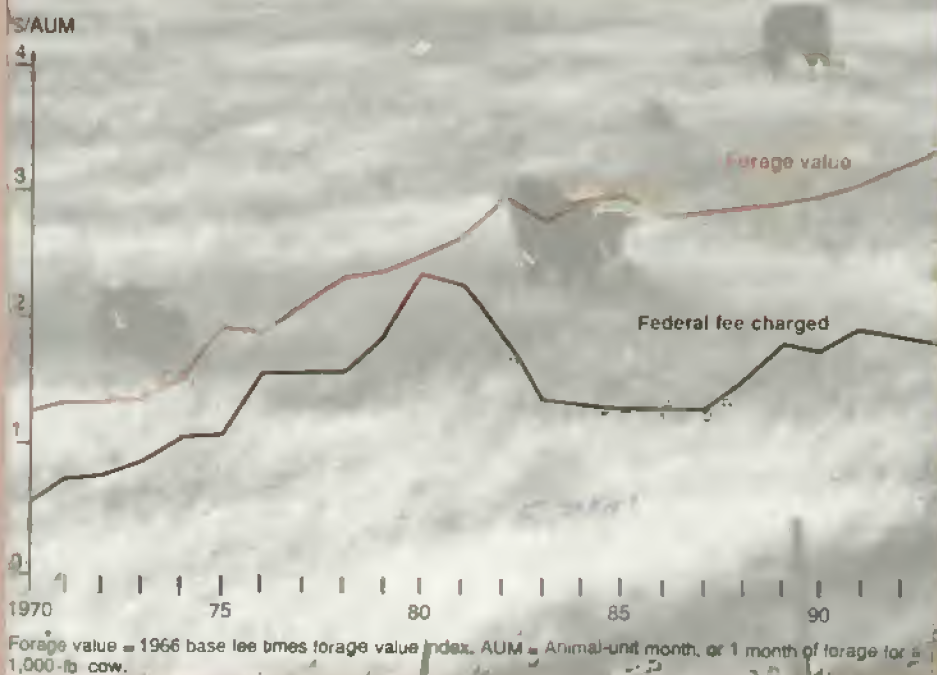
Economic effects of higher fees could be important in the West, but small nationwide. Just under 9 per-

cent of the U.S. beef cow herd, but about 25 percent of the Western herd, graze Federal lands at least part of the year. In 1988, more than 12 percent of the forage consumed by western livestock came from Federal lands, compared with 3 percent for the U.S. The proportion of total forage from Federal grazing land in individual western states varies from 2 percent in Washington to 43 percent in Nevada.

The U.S. sheep and goat industry depends more heavily on Federal grazing than the beef cattle industry. Federal lands provide 36 percent of sheep forage in the nine largest western sheep raising states, home to about half of the U.S. sheep flock.

[Ken Mathews (202) 219-0710]

Spread Between Forage Value and Grazing Fees Has Widened in the Past Decade





## Pork Output Moves Up

Hog slaughter in April rose about 3 percent above a year earlier, putting downward pressure on hog prices. Stocks of frozen pork were reduced during March, a month when they usually rise. The stocks were drawn down in anticipation of increased pork output in coming months and because of higher-than-expected wholesale prices in March.

Prices are expected to rise seasonally during the remainder of the quarter. Increasing supplies of beef during the summer are expected to moderate the rise in pork prices.

- Hog slaughter is expected to be about 4 percent above last year in the second quarter, and about the same as last year in the third.
- Stocks of frozen pork are expected to remain below last year's levels until the fall months.
- Hog prices fell from near \$50 per cwt in late March, to the mid-\$40's by the third week of April. Prices are expected to rise seasonally to \$50 per cwt at the end of the quarter.
- Retail pork prices in April were the lowest since December 1989, and the farm-retail price spread in March and April was the tightest since May 1990.

Imports of pork products and live hogs increased in response to higher prices in early 1993.

- Imports of pork products were up 9 percent in January-February.
- For all of 1993, pork product imports are expected to be up about 4 percent, with most of the increase from Denmark.
- Imports of live hogs from Canada are up 25 percent.

## Broiler Growth Strong, Exports To Be Record

Growth of broiler production continues through 1993, encouraged by strong domestic demand, record exports, stable feed prices, and higher broiler prices. Already above last year's levels, prices were expected to get a seasonal boost from peak chicken consumption on the Memorial holiday and are expected to get a boost on the Independence, and Labor Day holidays as well. Exports to the major markets of the Pacific Rim, Mexico, Eastern Europe, and Canada continue to be strong, and are growing in smaller markets, especially Romania, Iran, Jamaica, and China.

Export Enhancement Program sales, which accounted for less than 3 percent of broiler exports in 1992, aided exports mainly to the Middle East. Most export credit and food aid sales of broilers have been targeted to the FSU, mainly Russia, and these will increase this year.

- Weekly chick placements during April and May averaged about 4 percent above a year earlier.
- From February through April, the number of chicks hatched—an indication of broiler production 2 months later—averaged around 4 percent above a year earlier. On April 1, the size of the hatching-egg flock—an indication of production 3 months later—was 4 percent larger than a year ago.
- Broiler weights have been averaging 1-2 percent above a year earlier and continue to increase in response to demand for larger birds.
- Broiler output will likely be up about 5 percent from a year ago in the second quarter. For the second half of 1993, output is expected to grow about 3-4 percent above second-half 1992.
- Wholesale prices for whole birds are expected in the mid- to upper 50's in the second and third quarters, several cents above last year. The an-

nual average wholesale price in 1993 is expected to be 52-56 cents a pound, compared with 52.6 cents in 1992.

- The retail price for 1993 is estimated at 87-88 cents, slightly above last year.
- Broiler exports are expected to reach a record in 1993, about 720,000 metric tons, or more than 7 percent of production.

## Turkey Output Wanes

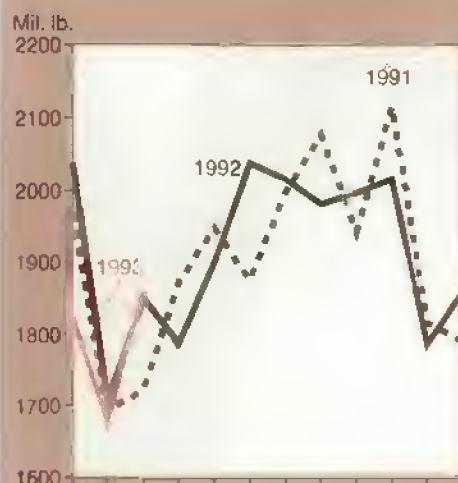
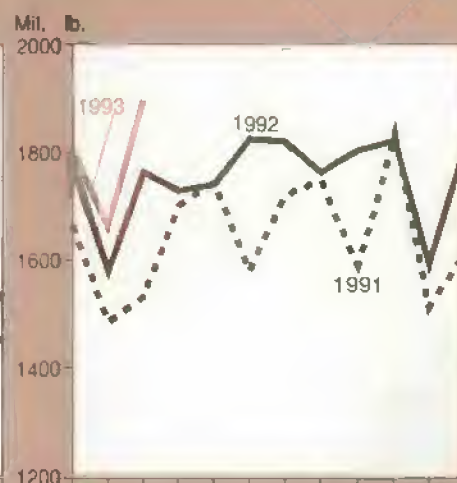
Turkey production is expected to grow about 1 percent in 1993, the slowest since 1984's 0.4 percent. Slow growth reflects continuing poor returns to producers on a whole-bird basis. A trend toward heavier birds is expected to help maintain some production growth in the second and third quarters. Turkey stocks are below last year's levels, and prices are expected to be steady to slightly higher for 1993. Exports continued to grow in early 1993, and turkey consumption in Mexico—the top U.S. market—maintained its rapid growth.

- Poult placements for second-quarter slaughter averaged about 2 percent below a year earlier, and placements for third-quarter slaughter were virtually unchanged from a year earlier.
- Net returns are estimated to have improved slightly over last year during the second quarter, nearing the break-even point. Feed costs were about 9 percent lower than a year earlier.
- First-quarter turkey stocks dropped to 357 million pounds on April 1, 9 percent below a year earlier. Whole-bird stocks, at 237 million pounds, were down 10 percent.
- Second-quarter hen prices are estimated to rise seasonally to about 60 cents a pound, about the same as last year. Prices of toms, favored for processing, are estimated slightly above a year ago at 62-64 cents.

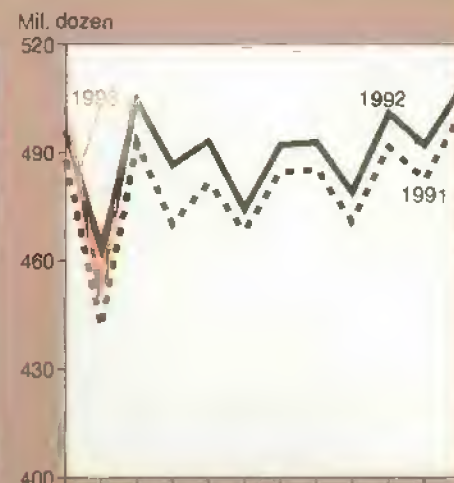
## Agricultural Economy

## Livestock &amp; Product Output

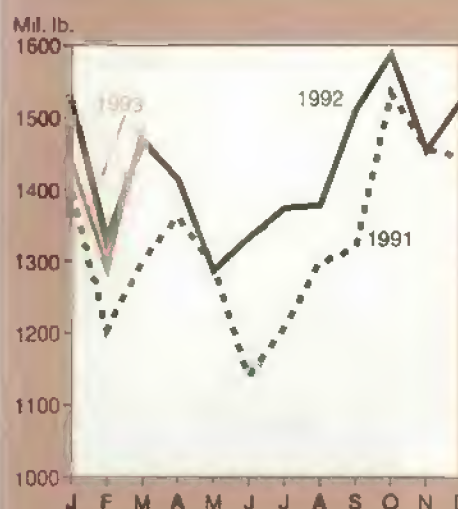
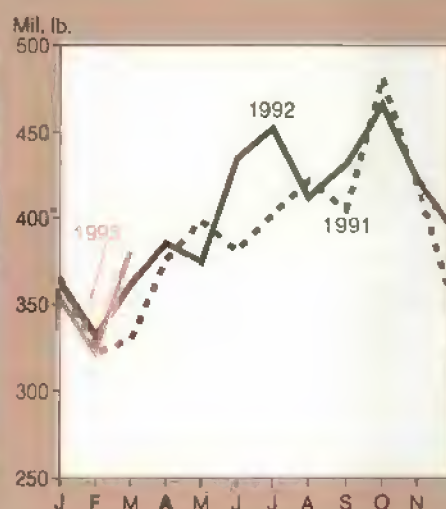
Commercial beef

Broilers<sup>1</sup>

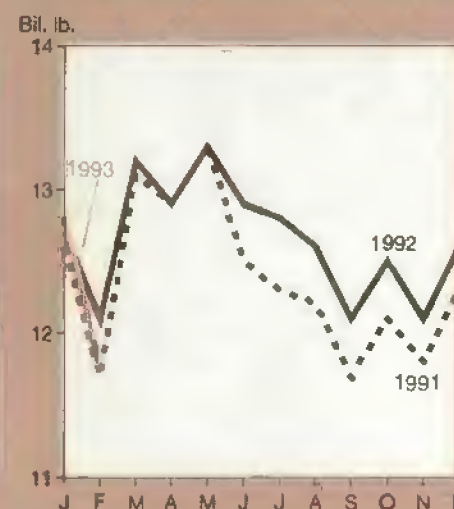
Eggs



Commercial pork

Turkeys<sup>1</sup>

Milk



<sup>1</sup>Federally inspected production, ready-to-cook.

- First-quarter turkey exports were up 15 percent compared with the first quarter of 1992.

### Egg Prices Continue Strong

Lower per capita egg supplies will keep 1993 prices above 1992 levels, although the size of the laying flock has remained slightly larger than last year. Flock replacement will increase during the summer as more pullets become available. Egg exports remain strong. Exports of table eggs to Hong Kong, the Middle East, Canada, and Mexico are expected to in-

crease, though exports to Hong Kong and the Middle East will depend on Export Enhancement Program funds.

- Flock size, 282 million hens, has remained nearly 1 percent larger than last year.
- Third-quarter egg production will be 1 percent larger than last year, and 1993 egg production will be slightly above last year's 5.9 billion dozen.
- Wholesale egg prices for the second and third quarters will be 8-10 cents above last year's 62 and 64.5 cents


per dozen. For 1993, prices will average around 74 cents per dozen, compared with 65 cents in 1992. Retail egg prices for 1993 will be 8-10 cents above last year's 86 cents per dozen.

- The first-quarter hatch of pullets for summer flock replacement was up 3 percent.
- Egg exports will reach about 160 million dozen (shell-egg equivalent) in 1993, up 2 percent.



## DEIP Sale to Mexico Announced

The dairy outlook for the summer brightened with the April 26 announcement that Mexico will buy 20,000 metric tons of nonfat dry milk under the Dairy Export Incentive Program (DEIP). The DEIP announcement is expected to delay and moderate previously expected declines in nonfat dry milk prices and in cheese and farm milk prices. The purchases by Mexico, which will be shipped between May and August, nearly double the export subsidy funds committed to the 1993 DEIP.

For further information, contact: Richard Stillman and Agnes Perez, coordinators; Steve Reed, cattle; Leland Southard, hogs; Lee Christensen, Larry Witucki, and Milton Madison, poultry; Jim Miller and Sara Short, dairy. All are at (202) 219-1285. 

## Specialty Crops Overview

### Orange Juice Prices Increasing

Near-term futures contract prices for frozen concentrated orange juice (FCOJ) hit bottom-of-the-barrel levels in January and February following upward revisions in Brazil's 1992/93 orange output.

Prices have since recouped some of their earlier losses in response to increased consumption in the U.S. and a downward revision of Florida's production. Near-term futures are considered an indicator of current cash prices.

Although prices have recovered recently, they are expected to continue to be low compared with the 1980's. Demand for fresh and processed oranges in the 1990's is not expected to keep pace with production growth.

- FCOJ nearby futures prices dropped below 70 cents per pound of solids in January 1993 from \$1.64 in December 1991; by mid-May, near-term futures had risen to near \$1 per pound.
- Estimates of Brazil's 1992/93 output rose in the middle of the Florida season, from 275 million boxes to 290 million.
- Florida's 1992/93 orange production is estimated at 184 million boxes, a 32-percent increase over 1991/92 output. Estimates of the juice yield for Florida oranges rose as the season progressed, from the first estimate of 1.48 gallons of concentrate per 90-pound box in October, to 1.58 gallons in May.
- Florida Department of Citrus projections indicate orange output in Florida, the source of about 85 percent of U.S. juice oranges, could range from 250 to 270 million boxes per year within 10 years. In addition, world orange production is expected to grow faster than current consumption trends during the remainder of the century.

## The U.S. Farm Sector

... Diversity

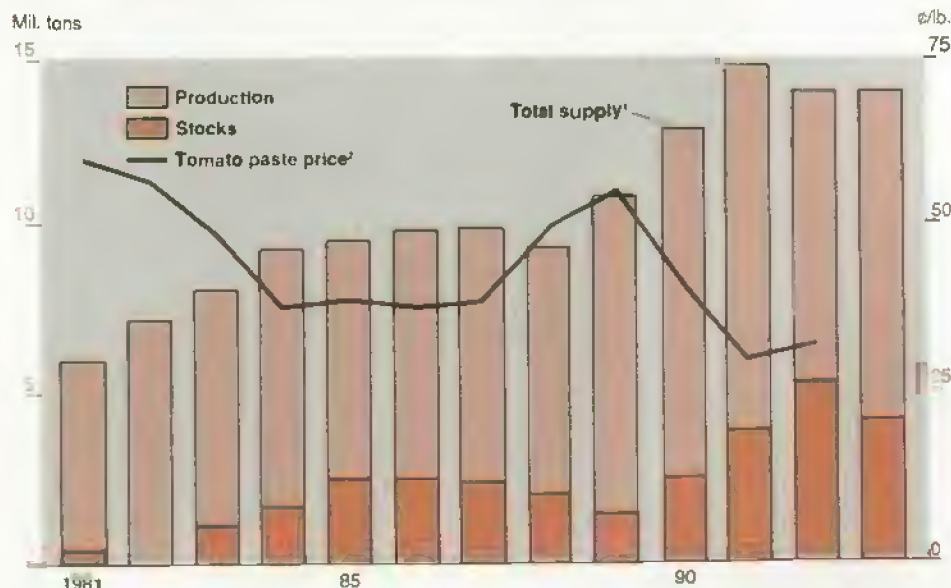
... Change

... Outlook

In the July issue of

**Agricultural Outlook**

### Tomato Processor Prices Begin Recovering As Supply Levels Off



1993 forecast.

<sup>1</sup>Stocks on July 1. Fresh-ton equivalent.

<sup>2</sup>July-June marketing year average price, 55-gallon drum, f.o.b. California.

## Agricultural Economy

### Processing Orange Prices To Stay Low

Large orange crops in Florida and Brazil have dropped 1992/93 processing orange prices to their lowest level in recent years. Although prices have begun to recover, they are unlikely to rise to levels of the 1980's. Increased world trade has generated price competition in the orange juice market, and Florida's growers have boosted output and lowered costs through improved farming practices.

The on-tree value of oranges in Florida, an estimate of the price received by growers, averaged \$2.26 per 90-pound box from November 1992 through March 1993. This 5-month average for 1992/93 compares with a season-average price of \$6.10 last year and \$7.58 during 1987/88. Although nominal prices for juice oranges were lower than \$2.26 in the early 1970's, when adjusted for inflation, the 1992/93 price received by Florida growers would be the lowest price on record.

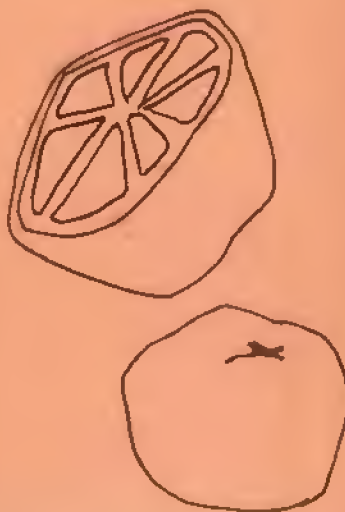
Processing orange prices are not expected to remain at their current low level indefinitely; however, they are not likely to rise to 1980's levels in the near future. In inflation-adjusted dollars, Florida orange prices are likely to continue their downward trend. Reasons for the low price prospects are that production in Florida is expected to rise and Brazil is expected to continue aggressive price competition in the U.S. and world markets. Florida and Brazil are the world's two largest producers of oranges for juice.

Large orange crops are expected in Florida throughout the 1990's as recently planted groves approach peak production. Florida producers planted a large number of orange trees in the late 1980's, following freezes that destroyed many groves. Because the new groves were planted more densely than older ones, production per acre will likely be higher and costs lower. Orange trees typically reach bearing age 3 years after planting and are full-bearing after 15 years. Many trees planted in the 1980's are beginning to produce and have not yet reached their maximum production potential.

World output as well as Florida production is a key factor in determining prices received by growers. Increased world orange juice production is expected during the remainder of the 1990's, creating more price competition for Florida producers.

Brazil's producers have signaled their intentions to compete in world markets by developing the Japanese market for orange juice. Two of Brazil's largest orange juice companies are investing in a terminal at the port of Toyohashi in Japan, and promotion of a Brazilian brand-name juice to be sold by Japanese distributors. The new terminal will enhance the distribution of Brazilian orange juice in Japan, as well as in other East Asian countries. Japan eliminated the quota system for orange juice imports in April 1992, and Brazil supplied about 70 percent of Japan's orange juice imports that year.

[Diane Bertelsen (202) 219-0883]



### Processing Tomato Prices Moving Up

The U.S. processing tomato industry began recovering in 1992 from several years of unusually low product prices, the result of rising stocks. Annual production exceeded marketings in 1989, 1990, and 1991. Processors consequently accumulated excessive stocks, which pushed product prices in 1991 and 1992 to their lowest levels in 10 years.

Production cutbacks and an improving trade balance helped draw down stocks during early 1993, and some rise in wholesale prices was seen this spring. Moderate output expansion is expected in 1993, but to less than pre-1992 levels.

- F.o.b. prices for industrial tomato paste, an indicator for the processed tomato products market, averaged 30.5 cents a pound during marketing year 1991/92, the lowest in 10 years. Prices for tomato paste in May 1993 were in the range of 34-35 cents a pound.
- Processors and growers indicate they intend to contract 9.8 million tons of tomatoes in 1993, 14 percent more than in 1992.
- Actual processing production dropped to 8.8 million tons in 1992 from 10.9 million in 1991. Contract production accounted for 98 percent of 1992 production.
- Estimated consumption of canned tomato products rose to 70 pounds a person during 1990-92 from an average of about 63 pounds during the previous 10 years. Lower prices may explain part of the increase.

### Almond Output Lower, Prices Strong in 1993/94

U.S. almond supplies will likely continue to be tight in 1993/94, given small carry-over stocks and lower production.



- Almond production in 1993 is estimated at 520 million pounds, shelled basis, down 5 percent from the year before but 6 percent ahead of 1991.
- If the 520-million-pound output is realized, supplies for the 1993/94 season would be tight for the second year in a row. Beginning stocks on July 1, 1993 are expected to be tight because of small supplies and brisk demand during the 1992/93 season.
- Sparse carryover stocks and continued robust demand could set the stage for a second consecutive year of strong prices. Grower prices were estimated at \$1.30 a pound in 1992/93, up from \$1.19 the year before.

### ***Sugar Tariff-Rate Quota Period Extended***

USDA announced that the period for the 1992/93 U.S. tariff-rate quota for sugar will be extended, so that it will end on September 30, 1994, instead of September 30, 1993. The level of the quota also was changed. The actions are anticipated to help prop up domestic sugar prices.

- The tariff-rate quota was raised from 1,356,945 short tons, raw value, for the 12 months ending September 30, 1993 to 2,500,041 tons for the 24 months ending September 30, 1994 (annually, down from 1,356,945 to 1,250,020 tons per year).
- The new tariff-rate quota effectively reduces the annual rate of sugar imports during the 24 months ending September 30, 1994 by 107,000 tons.

### ***Floriculture Output Grows***

Increases in sales of potted flowering plants, bedding and garden plants, and cut greens more than offset declines in cut flowers and foliage plants in 1992. And sales are expected to grow in 1993 because of increased domestic demand. Value of sales provides a measure of total output of all horticulture products.

## **A Growing Green Industry**

Floriculture and environmental horticulture comprise one of the fastest growing sectors in U.S. agriculture—the green industry—which more than doubled its sales between 1982 and 1991. Green industry cash receipts (at the grower level) rose to \$8.4 billion in 1991, 10 percent of farm cash receipts for all crops. These estimates exclude sales of cut Christmas trees, seeds, and food crops.

Retail sales of flowers, plants, and related horticultural products have grown twice as fast as gross domestic product over the past decade, reaching \$40.7 billion, or \$160 per person, in 1992. At the retail level, floricultural products account for about 42 percent and environmental horticulture products for about 58 percent of the green industry's plant sales.

Floriculture consists of cut flowers and decorative greens, potted flowering and foliage plants, and bedding and garden plants. Although usually grown in greenhouses or under other protective cover, some floriculture crops, such as cut flowers, are grown partly outdoors.

Environmental horticulture refers to live plants used for water and soil conservation, wildlife preservation, air quality enhancement, and providing shade and an aesthetic space. Most environmental horticulture plants are perennial and last several years. Examples of environmental horticulture plants include landscape trees, shrubs, bulbs and sod, groundcovers, and nursery stock.

Green industry production is labor-intensive, requiring a large proportion of hand labor. The floriculture sector hired an estimated 132,000 workers at the peak season during 1992. Payroll was an estimated \$900 million for workers involved in growing and harvesting operations. Many additional jobs such as sales and landscaping services are linked to floriculture and environmental horticulture. The environmental horticulture sector employed an estimated 238,000 workers, with a payroll of approximately \$1.6 billion.

Floriculture and environmental horticulture crops are grown commercially in all 50 states and are among the top five commodities in 21 states. They rank second to dairy in California and second to citrus in Florida. In 1991, green industry farm cash receipts ranked sixth among all commodity groups, behind cattle and calves, dairy products, corn, hogs, and soybeans, and surpassing broilers for the first time.

Green industry sales have grown since 1980 despite increased competition from imports, especially cut flowers from Colombia and other Central and South American countries. Approximately 60 percent of the cut flowers sold in the U.S. are imported.

Imports are expected to continue playing a major role in the U.S. cut flower market in the 1990's. Several major exporters have cost advantages over U.S. producers due in part to lower labor and energy expenses. In addition, the Andean Trade Preference Act eliminated tariffs on cut flowers from Colombia and other Andean countries, further reducing the costs of exporting to the U.S.

Sales of landscaping plants are highly linked to new housing and commercial construction. Plant sales were strong in the 1980's when housing construction was strong, but have declined in the 1990's as construction has slowed.

*[Doyle Johnson and Tarra Johnson (202) 219-0883]*



## Agricultural Economy

- U.S. domestic grower sales of floriculture crops rose 2 percent to \$3.1 billion (farm-gate value) in 1992. This estimate is based on a 36-state survey of growers with annual sales of \$10,000 or more.
- Domestic grower sales of potted flowering plants and cut cultivated greens increased 4 and 1 percent. Potted flowering plants are becoming increasingly popular for indoor and patio use and for holidays and gift giving, and growers plan to increase production area of most varieties of potted flowering plants in 1993.
- Bedding plant sales rose 11 percent in 1992. Bedding plant demand has risen in recent years because of increased popularity of planted flowers. Bedding plant production is expected to continue its growth in 1993.
- Grower sales of foliage plants declined 7 percent in 1992, perhaps reflecting some switching by consumers to potted flowering plants and cut flowers.
- U.S. grower sales of cut flowers declined 4 percent in 1992. Retail sales continued to rise as imports captured a larger share of the U.S. cut flower market. Domestic cut flower output may decline further during 1993, given continuing pressure from imports. The production area of carnations, chrysanthemums, and gladioli intended for harvest in 1993 is lower than in 1992, while the area of roses is nearly unchanged.

[Glenn Zepp (202) 219-0883]

**For further information, contact:** Dennis Shields and Diane Bertelsen, fruit and tree nuts; Gary Lucier, vegetables; Peter Buzzanell, sweeteners; Doyle Johnson, greenhouse/nursery; Verner Grise, tobacco (202) 219-0883. David Harvey, aquaculture; Lewrene Glaser, industrial crops (202) 219-0085. **AO**

## Commodity Spotlight



Courtesy of California Tree Fruit Agreement

## Peaches Cut Seasonal Slice of the Fruit Market

Once dubbed the "queen of fruits," peaches are still a popular seasonal item on the fresh fruit market. While fresh-market peaches have not kept pace with other leading fresh fruits in domestic consumption over the last two decades, peach production has trended upward. Exports of peaches (including nectarines), mostly to Canada and Mexico, have risen steadily from 30 million pounds in 1970 to 156 million in 1992, and are expected to continue growing throughout the 1990's.

Several factors may have contributed to static per capita domestic fresh peach consumption since the 1970's. First, prices for peaches rose faster than prices for most other substitute fruit, including strawberries and grapes. Second, some consumers may prefer fruits that require less preparation time than peaches.

Seasonality may also help explain why peach consumption has trailed that of other fresh fruits—peaches have remained a summer treat. In 1992, about 83 percent of the peach supply was mar-

keted during May through September. While imports of fresh peaches, mostly from Chile, have increased during the off-season (October-April) in recent years, they have lagged imports of some other fruits. Grapes, for example, were marketed in steady quantities almost all year during 1992, with imports filling in during the off-season in the U.S.

In addition, a larger selection of imported fruits has become available to the consumer during the last several decades, possibly increasing market share among these individual fruit commodities. For example, annual consumption of pineapples, half of which are imports, more than doubled from under a pound to about 2 pounds per person during the last two decades. Annual consumption of mangos, which are mostly imported, climbed from 0.05 pound to about half a pound per person.

In 1992, Americans consumed approximately 6.3 pounds of fresh peaches (including nectarines), about 3.5 pounds of canned peaches, and just under half a pound of frozen peaches. Canned peach consumption has declined since the early 1970's, reflecting growing consumer preference for fresh fruit over canned.

Clingstone peaches—so named because the fruit clings to the stone—are the major type grown for processing into peach slices, baby food, juice, and fruit cocktail. Freestone peaches are mostly used for the fresh market.

California, which supplies almost half of the fresh-market production and nearly all of the processed production, reported a fairly good peach bloom this year. California accounted for 44 percent of U.S. fresh-market peach production in 1992, followed by South Carolina (with 12 percent), Georgia (9 percent), and New Jersey (6 percent). Harvest of the 1993 peach crop began in California during mid-April. The Georgia peach crop, although larger than in 1992, could be down from normal due to damage during an intense winter storm in mid-March, and frost damage on April 3. Peaches in South Carolina and New Jersey were apparently not significantly affected by the March storm.



California's Central Valley has cool winters, long, warm summers, fertile soil, and low humidity, contributing to yields that are more than double those in most eastern and southern states. Peaches are the top-valued fruit crop in Georgia, New Jersey, and South Carolina, and are also important in Michigan, Pennsylvania, Virginia, Washington, and other fruit-producing states.

### Seasonal Nature Affects Markets, Prices

The seasonal shipping and price pattern is quite distinct for peaches, because they are available during only part of the year and are highly perishable—storage is limited to 2-3 weeks after harvest. The U.S. marketing season for fresh peaches begins as early as April and concludes in September or October, as growers in different parts of the country enter the market and as varieties with different maturity dates are harvested.

Grower prices are generally highest early in the season and then fall during peak shipping months in July and August. Prices usually rebound when shipments decline in September. Off-season imports, primarily from Chile, have tripled

in the last 15 years, but imports still are equal to only 5 percent of U.S. supply.

Because marketing seasons overlap for most peach-producing states, there is considerable competition among domestic sources. Fresh-market peaches from California generally command higher prices than peaches from Georgia, South Carolina, or New Jersey. California peaches are usually more uniform than peaches from most other states, and their quality is consistently high.

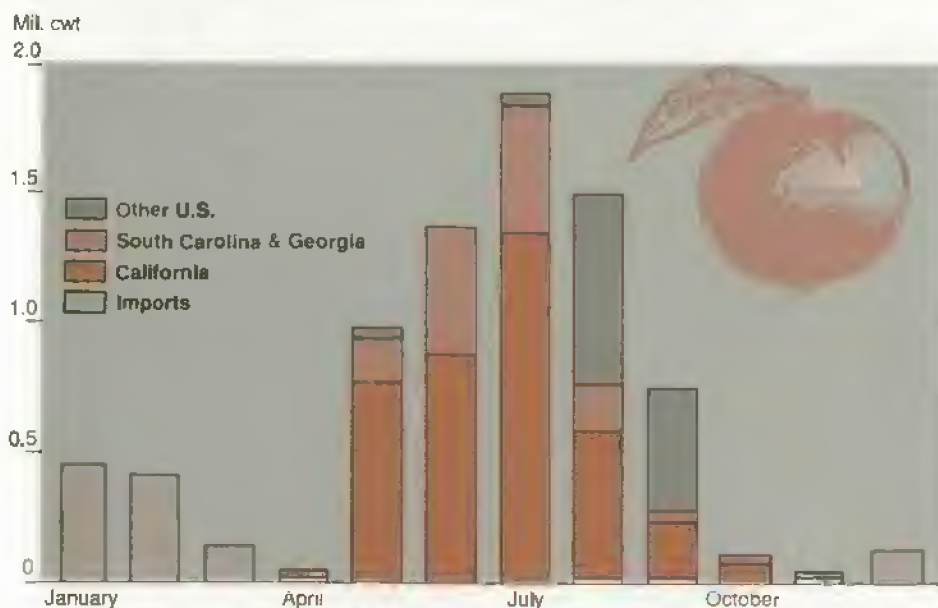
Growers either pack their own peaches or contract through custom packinghouses. For California peaches, packinghouses engage brokers to sell the produce nationwide. For peaches from most other states, brokers usually market the product regionally. Some peaches are also sold locally through farmers' markets and other direct outlets.

More than 100 peach varieties are grown in the U.S. Because of its climate, California has the longest marketing season, which begins with the first shipments of the "Flordaprince" variety in mid-April. Popular varieties subsequently marketed include Flavorcrest in early June, Elegant Lady in late June, and O'Henry in July. The season ends with Autumn Crest in late September or October.

Research is leading to development of peach varieties with higher yields, stronger pest resistance, and other desirable characteristics, and could result in an expansion of the areas where peaches are grown.

- USDA recently released an early variety called Summerprince, which is grown in the southern and eastern U.S. and harvested in early June when prices are higher than later in the season.
- New rootstocks are being developed with more resistance to a number of pests, including ring nematodes which lead to bacterial canker and tree death.
- Development and use of dwarfing peach rootstocks will someday reduce tree sizes and cut labor costs up to 50 percent. Apple growers have used dwarfing rootstocks for many years with considerable success.
- Peaches are not cold-hardy, and growing areas are limited by minimum winter temperatures. University-based research in South Carolina and Georgia may soon lead to an interstem grafting technique that delays blooming, thus possibly avoiding freeze damage. The process combines a rootstock, an interstem from a delayed-bloom variety, and one from a fruit-bearing variety.

California Varieties Lead Off the Domestic Peach Season in April



### "Do the Ripe Thing"

Research and promotion activities for peaches are conducted by Federal and state governments, as well as by private industry groups. For example, the California Tree Fruit Agreement (CTFA) consists of several Federal marketing orders funded by grower assessments, which promotes peaches and other soft fruit in domestic and world markets. The CTFA also establishes and enforces quality standards. State marketing agreements promote peaches in South Carolina, Georgia, and other states.

In some states, growers and shippers provide information and funding to the industry so that peach promotions are in

## Commodity Spotlight

place during peak shipping times to help generate demand. For example, CTFA recently designed an advertising campaign with the slogan "Do the Ripe Thing," to promote stone fruit consumption. Brown paper bags with special instructions on how to ripen fruit properly at home—a key factor in encouraging peach consumption—are made available in supermarket produce departments.

The National Peach Council, an organization of growers/shippers, is attempting for the first time to gather information from all regions of the country to determine weekly national supply. The information will help all regions promote peaches and keep buyers better informed about supplies. This could help limit large marketings that drive down prices.

### California Canning

California grows about 95 percent of U.S. peaches for the processing market. About 750 growers market cling peaches to California's nine fruit processors. Many growers are represented by a bargaining association that annually negotiates with processors over prices. The association represents more than half of California cling peach production. To take advantage of economies of scale and seasonality, most peach processors handle other processed fruits and vegetables as well.

California cling peach production is expected to trend upward during the next several years as more cling peach bearing acreage comes into production. Relatively high prices in the 1980's spurred

growers to plant more cling peach acres in California. Growers will likely face lower prices in the next 3-5 years if the current production trend continues. Lower prices, though, would make U.S. canned peaches more price-competitive in the world market.

The U.S. is the world's largest producer of canned peaches, followed by Greece. Greece is both the primary source of U.S. canned peach imports and the primary competitor in U.S. export markets. U.S. exports represent about 5 percent of U.S. canned peach use. Most exports go to Japan, Taiwan, and Canada. Imports make up about 5-10 percent of U.S. supply.

A 1989 agreement between the U.S. and the European Community (EC), including Greece, addressed a U.S. complaint that the EC was unfairly subsidizing the processed fruit industry, and brought EC prices more into line with U.S. prices. The implementation of the agreement reduced subsidies paid to EC canners, and increased the final EC product cost, although not above that of California. Nevertheless, according to a recent study, Greece continues to be a lower cost producer than the U.S., and now supplies much of Europe, once a large U.S. export market.

World production of peaches for processing is expected to rise during the next several years, led by increases in the U.S. and Greece. Chile and Argentina are expected to become more competitive in the future as output grows and product quality improves. The canned fruit industry in South Africa is also expanding, fol-

lowing reduction in the 1980's due to trade sanctions.

### Growth Areas Seen in Exports, Niche Markets

California produces most of the U.S. fresh-market peaches destined for export. About 80 percent of fresh peach exports go to Canada. Exports to Mexico, the second-largest market, have been increasing since about 1986 when Mexico joined GATT and reduced trade restrictions. The value of peach exports to Mexico has increased almost 60 percent in just the last 3 years, to \$14 million.

Fresh peach exports would be expected to increase further if the North American Free Trade Agreement (NAFTA) is approved and implemented. U.S. peach exports to Mexico are estimated to more than double by the end of the 15-year transition period if NAFTA is implemented, according to a recent ERS study. U.S. peach production would be somewhat higher than it would be without NAFTA.

With the number of farmers' markets increasing in the U.S. in recent years, more fresh-market peaches are likely being sold through these outlets. Consumption of frozen peaches—which includes frozen peach slices for pies and other uses—has also increased during the last 20 years. Recent increases in demand for peach juice offers another alternative for California peach growers, although this market is limited.

[Dennis Shields (202) 219-0884] AO



## World Agriculture &amp; Trade



## Agricultural Reform In Russia

One of the central challenges of agricultural policy reform in the Russian Federation is to transform the institutions of agricultural production and commerce into a market system while minimizing the social costs. In order to balance these two objectives, Russian agricultural policy-makers have adopted a strategy of introducing partial and gradual reforms.

Russia has made some progress in agricultural reform since the end of 1991, when the Soviet Union was dissolved and Boris Yeltsin and a small group of reformers around him began to guide Russia toward a market economy. In 1992, in addition to deregulating food and farm-gate prices and allowing the establishment of a small number of private farms, Russia also permitted the formation of a limited number of private commodity exchanges. The Moscow Grain Exchange, Moscow Commodity Exchange, and Russian Commodity and Raw Material Exchange were among those created.

Price deregulation was the most successful reform initiated in 1992, contributing to changes in production and consumption for which it was intended. However, producer and consumer prices only partially allowed market signals to communicate between consumers and producers, since the state reintroduced subsidies in May 1992 for both producers and consumers after initially eliminating them.

The retention of the state procurement system remains as the pillar of the marketing of agricultural commodities. Producer subsidies continue to bail out unprofitable producers, particularly in the livestock sector. These policies have reinforced trends of the past 2 years toward barter in interrepublic and intrarepublic trade and continue to lead to production of a mix of agricultural goods in a variety to satisfy producers and state planners, rather than consumers.

The partial and gradual approach to reform has resulted in policy inconsistency, and has slowed the emergence of private producers and markets. New poli-

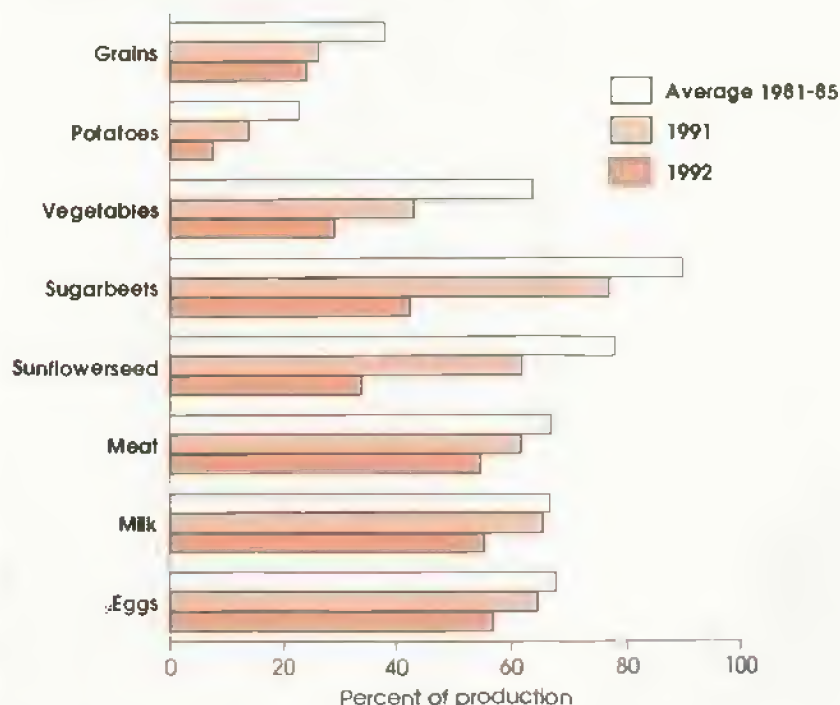
cies have not yet been significant enough to shift the agricultural economy from state domination. In short, real reform and restructuring in agriculture is still in its infancy in the Russian Federation.

### Price Deregulation Alters Consumption

In January 1992, deregulation of retail and wholesale prices for most goods eliminated producer and consumer subsidies (both explicit and implicit) and in effect decreased real consumer income. These changes decreased the consumption, profitability, and production of most agricultural commodities, particularly in the livestock sector.

Before 1992, consumers and producers received price subsidies for livestock products. Consumer prices for meat, milk, butter, and other animal products were kept artificially low, causing shortages and resulting in price subsidies for those consumers who were able to purchase these products. Likewise, farm-

State Procurement Share of Russian Farm Products Has Declined



Sources: Narkhoz SSSR, Narkhoz RF, and Russian Ministry of Agriculture.

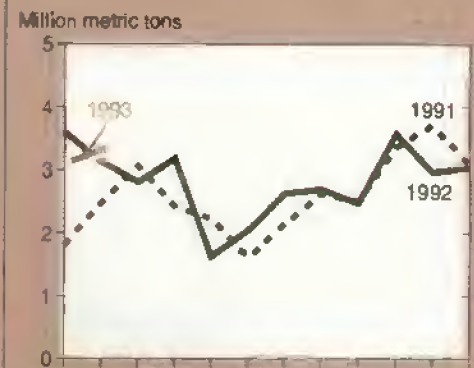
## World Agriculture &amp; Trade

## U.S. Trade Indicators

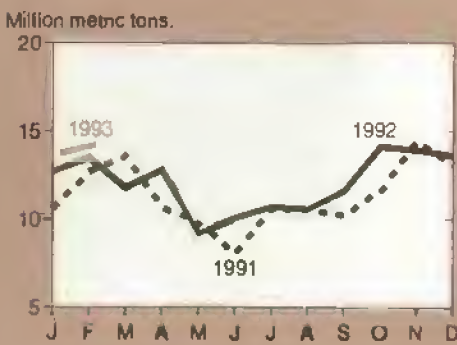
U.S. agricultural trade balance



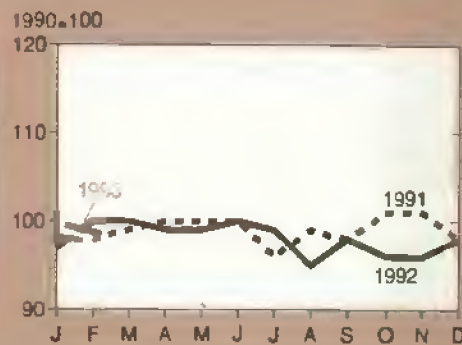
U.S. wheat exports



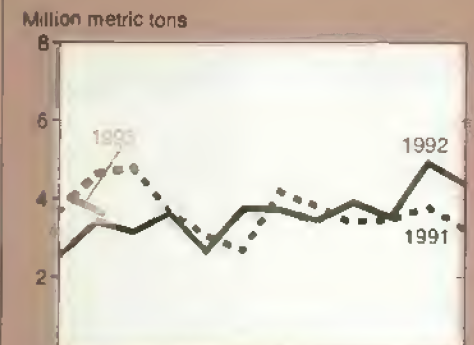
Export volume



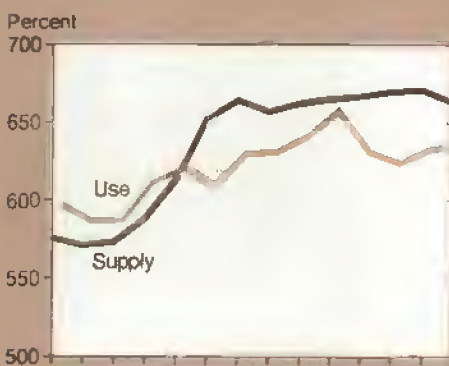
Index of export prices



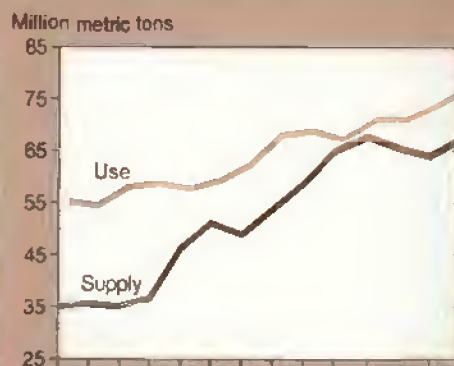
U.S. corn exports



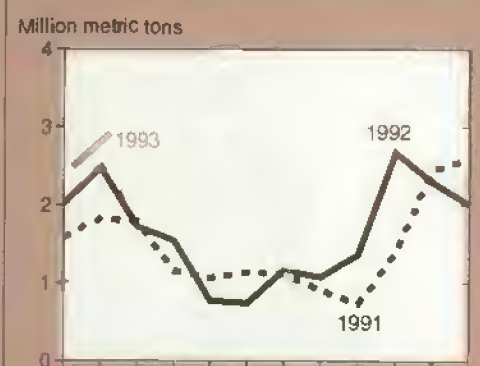
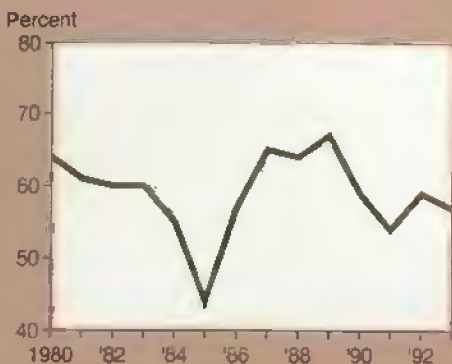
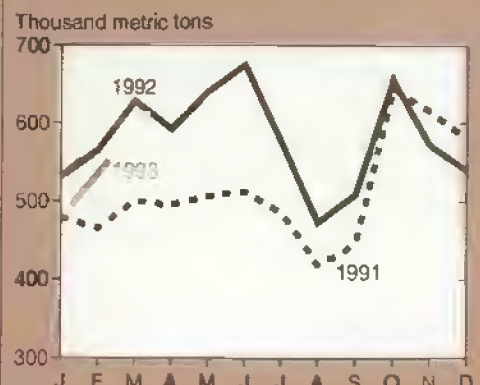
Foreign supply &amp; use of coarse grains



Foreign supply &amp; use of soybeans



U.S. soybean exports

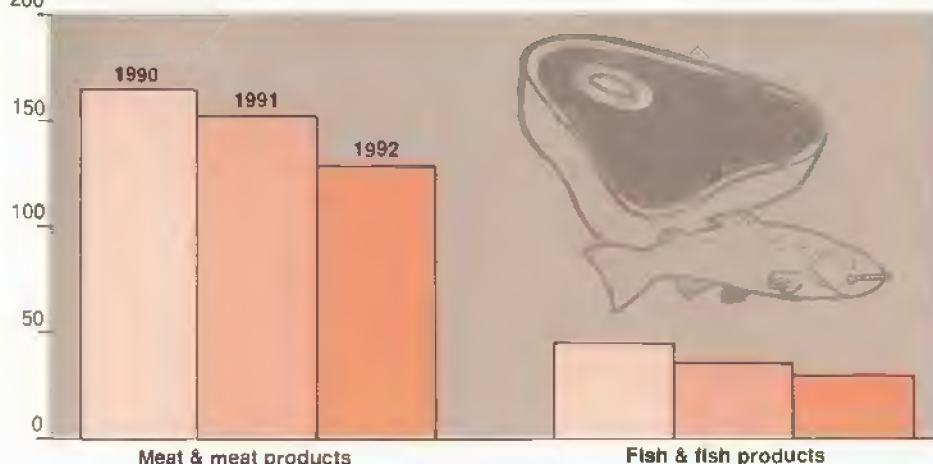
U.S. share of world coarse grains exports<sup>1,2</sup>U.S. share of world soybean exports<sup>1,2</sup>U.S. fruit, nut & vegetable exports<sup>3</sup>

<sup>1</sup> Excluding intra-EC trade. <sup>2</sup> October-September years. <sup>3</sup> Includes fruit juices.



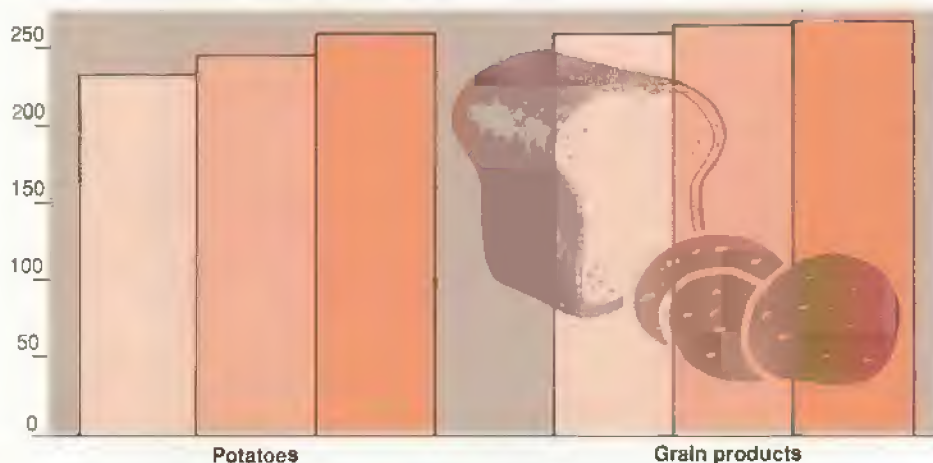
### Russians Have Reduced Consumption of Meat and Fish Since Reforms Began . . .

Lbs. per capita  
200



### . . . While Consuming More Potatoes and Grains

Lbs. per capita



Meat and meat products include fat and offals. Grain products include pulses.

Source: State Committee for Statistics of Russian Federation.

gate prices for animal products were kept artificially high in comparison to world prices, resulting in a price subsidy for livestock producers as well.

The subsidies received by livestock producers and consumers were instrumental in raising per capita consumption of these products to levels considerably above those of other countries with similar per capita incomes. For instance, according to data from the U.N. Food and Agriculture Organization, Venezuela and Mexico, with per capita GDP levels similar to Russia's in 1990, consumed much less meat per capita than Russia.

In 1992, average real wages in the Russian Federation fell sharply from their level of the previous year, reducing real disposable income. Russians reacted by reducing their consumption of high-priced livestock products and substituting bread and potatoes.

The high-production, high-cost livestock industry created by subsidies became unprofitable when subsidies were reduced through price deregulation. Input prices were deregulated, along with farm and retail prices, and the price of inputs for livestock products (in terms of how many tons of output they cost) rose consider-

ably more than prices of inputs for grain. The change in relative prices caused a squeeze on profits in the livestock sector.

Reduced profitability of livestock products prompted Russian farms to reduce herd sizes through increased slaughter—including breeding stock—and by limiting herd replacement in 1992. Meat and milk production in Russia fell by 18 percent in 1992, and cattle and swine inventories fell by 7 and 15 percent. Even with a 15-percent fall in per capita meat consumption, average consumption still exceeds that of many countries with comparable per capita income levels.

### State Procurement System Retained

The principal problems to date with Russian agriculture have not been in the level of total output, but in inefficient use of resources, weak market incentives, and the sheer waste in the marketing, supply, and distribution system. One of the main impediments to reform had been the state procurement and distribution system, and the state setting of farm prices. State, collective, and private farms were required to sell a portion of their agricultural products to the state and cooperative procurement agencies, at prices established by the state.

The 1992 reforms weakened but did not eliminate a main feature of the old system—state procurement. Farm-gate prices were deregulated, and they began following private market prices. The portion of total production procured by the state in 1992 dropped by 30 percent or more for specialty crops and 10 percent or more for livestock products from 1991. The state lost its near monopsony power for oilseeds and sugarbeets and will most likely continue to lose market power for all commodities in 1993.

Despite substantial declines in procurements in 1992, authorities have not disbanded the system which continues to inhibit the development of robust, country-wide private markets for agricultural commodities. Alternative marketing channels for agricultural commodities include collective farm markets—the traditional exception to the state procurement

## World Agriculture & Trade

system—and barter. Recently permitted private exchanges have involved a relatively small portion of sales.

High inflation caused farmers to use the barter system more heavily in 1992, regularly exchanging sugar, grain, meat, and cotton for spare parts, fuel, and other farm inputs. The increased use of barter has disrupted input purchases and led to increasingly wasteful use of unprocessed grain in livestock feeding.

For example, in 1992, grain procurements as a portion of total production were low by historical standards. Farmers kept larger stocks of grain for feeding directly to livestock, for wages, and for barter. The rise in the portion of animal feed made of unprocessed or slightly processed grain reduced feed quality from already low levels. Poorer feed quality contributed to falling productivity in the livestock sector.

The state procurement system in Russia is set to change somewhat in 1993. The Russian government has announced that in 1993 it will reduce procurement targets by 10-78 percent, depending on the commodity. For example, the meat procurement target for 1993 is only 22 percent of its level in 1992, the grain target is 46 percent of the 1992 level, and the sugarbeet target, 69 percent.

Moreover, according to an agreement between the government, the Agrarian Union (representing state and collective farms), and AKKOR (Association of Peasant Farms and Agricultural Cooperatives, representing private farmers), 1993 state procurement prices for agricultural commodities will be adjusted based on changes in input prices.

While national procurement targets are being reduced, the Russian government has authorized the establishment of regional commodity procurement funds in 1993, which will likely be financed locally. However, if local government procurement prices are below commodity exchange prices in 1993, local authorities will probably attempt to prevent export of agricultural commodities out of their regions, thus preventing the formation of nationwide commodity markets.

### *Private Sector Gaining, But Still Small*

Specialty crops have traditionally been produced mostly on private plots, farms, orchards, and gardens in the Russian Republic, and the use of private land for growing grains and livestock is increasing. According to the limited available data, potatoes, vegetables, and fruits were raised nearly exclusively on private plots, gardens, and orchards in 1991.

Grain, fodder, and oilseed crops continued to be raised predominantly on state and collective farms. The large majority of livestock production and holdings was in the state sector, though the portion in private hands grew rapidly in 1991 and 1992.

The nonstate/collective farm sector now occupies a 10-percent share of agricultural land in the Russian Federation. Private land is held in:

- private plots,
- gardens,
- orchards,
- individual private farms,
- livestock cooperatives,
- agricultural cooperatives, and
- collective and state farmland reregistered as associations of private farms.

This share is the result of an extraordinary growth in new forms of land ownership in 1992. On January 1, 1992 the portion of agricultural land held in the nonstate/collective farm ownership arrangements listed above had been only 3.8 percent and on January 1, 1991, 2.2 percent.

The right to buy and sell land and the consequent creation of a genuine land market has been a bone of contention between conservatives in the Supreme Soviet, and liberal reformers, since the first legislation on land ownership was passed in 1990. Several laws have been passed related to the ownership and privatization of land in the past 3 years, and the administrative restrictions on ownership in this legislation have so far prevented the formation of a genuine market for agricultural land.

Despite considerable progress in the development of private farming in 1992, the private share of total Russian agricultural production is still relatively small outside the fruit and vegetable sector. If

**Private Share of Livestock Holdings and Output in Russia Is Growing**

	1986-90 average	1991	1992
Percent			
Livestock holdings in the private sector, Jan. 1			
Pigs	14.4	18.5	22.0
Sheep and goats	23.5	27.7	31.2
Cattle	15.9	17.3	19.7
Cows	24.1	25.7	28.2
Production on nonstate farms			
Eggs	21.3	22.1	25.9
Wool	21.0	28.4	NA
Meat	24.7	30.9	36.6
Milk	23.4	26.3	31.1
Potatoes	NA	92.0	NA
Vegetables	NA	69.0	NA
Fruits and berries	NA	95.0	NA

NA = Not available.

Source: State Committee for Statistics, Russian Federation.



## World Agriculture & Trade

the 1992 changes continue, cattle herds might become predominantly private within the foreseeable future. However, the main cash crops would still be predominantly produced by state and collective farms.

### One Step Forward, One Step Back

Beginning in May 1992, the government began to backtrack from the reforms of the first quarter. As agricultural production and profitability declined, many state and collective farms, state agribusiness enterprises, the Supreme Soviet, and the Russian Congress of People's Deputies (in May and December 1992) blamed the reforms.

In response, the government reintroduced fiscal subsidies, extended soft loans to agricultural producers, and in May 1992, announced new crop and livestock price subsidies. For consumers, local governments maintained partial price controls on some food products throughout the entire year, though these were limited by local budgets. Finally, in December 1992, sizable subsidies to state millers and bakers were announced in order to slow price increases for bread and bakery products.

The reintroduction of producer and consumer subsidies in 1992 and 1993 reversed much of the effect of price deregulation. Despite the partial reversal of price deregulation inherent in these measures, there has not been a return to shortages in consumer markets, or a re-expansion of the livestock industry. However, the World Bank estimates that the cost of subsidies in the food and agricultural sector in Russia in the 1992/93 July-June agricultural year will be about 11.5-12.5 percent of GDP, about the same as in calendar years 1990 and 1991.

A more viable reform package would substitute private producers, wholesalers, processors, and markets for the existing system and make the ruble a stable means of exchange. This combination was the key to successful reform in China and the relatively successful economic transition taking place in Poland.

Successful reform in China and Poland might offer some examples for reformers in Russia despite disparate conditions.

Although following these examples would involve large-scale restructuring, it might well lead to less overall decline in output than the continuation of current policies. Moreover, the restructuring that would result would be more sustainable in the long run, since the goods produced would be those that consumers wanted. The transition from socialist to market agriculture requires a package of interconnected reforms—including price liberalization, macroeconomic demand stabilization, and supply-side reforms—part of which was enacted in 1992.

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### June Releases from USDA's Agricultural Statistics Board

The following reports are issued at 3 p.m. Eastern time on the dates shown.

#### June

- 1 Crop Progress
- 2 Broiler Hatchery  
Minn.-Wis. Mfg. Grade Milk,  
Final, 1990-92
- 3 Egg Products  
Poultry Slaughter
- 4 Dairy Products
- 7 Crop Progress
- 9 Broiler Hatchery
- 10 Crop Production
- 14 Crop Progress  
Turkey Hatchery
- 15 Milk Production
- 16 Broiler Hatchery
- 17 Cherry Production
- 18 Cattle on Feed
- 21 Cold Storage  
Crop Progress
- 22 Catfish Processing  
Eggs, Chickens & Turkeys
- 23 Broiler Hatchery
- 25 Agricultural Chemical Usage  
-Vegetables  
Livestock Slaughter
- 28 Crop Progress  
Peanut Stocks & Processing
- 29 Agricultural Prices  
Almond Production
- 30 Acreage  
Broiler Hatchery  
Grain Stocks  
Hogs & Pigs

## Farm Finance



National Association of Home Builders

## Lumber Prices Linked To Housing Markets

**I**n a volatile lumber futures market, prices doubled between October and March and then fell about 25 percent in April. The May lumber contract on the Chicago Mercantile Exchange hit a historical high of \$458.20 per 1,000 board feet on March 15. Since then, it has dropped—often by the allowed daily limit of \$10—to \$317.80 at the end of April.

Prices of lumber have been fluctuating too, though by less than futures prices. Lumber prices were nearly 30 percent higher in February than a year earlier, and they rose another 8.7 percent in March.

These are the largest swings in recent history, but it is not the first time these prices have moved in a big way. Lumber futures rose 34 percent between November 1978 and August 1979, while lumber prices rose 22 percent between November 1982 and July 1983.

## Farm Finance

Do such fluctuations mean changes in housing prices? If so, when, by how much, and for how long?

According to model simulations based on historical data, change in lumber futures prices has a slower, weaker, and shorter term effect than change in lumber prices themselves on housing and shelter prices. For example, a one-time 10-percent jump in the lumber futures price would have no noticeable effect on housing prices until a year later, and none on shelter prices until nearly 2 years later. Housing prices would then increase 2.6 percent over 2 1/2 years for every 10-percent rise in the lumber futures price. Similarly shelter prices, after the initial lag, would rise 1 percent over a year.

A 10-percent increase in lumber prices, however, would mean an immediate rise in construction materials prices and a rise in housing prices after 9 months. For every 10-percent increase in lumber prices, housing prices would rise an average of 5.4 percent over about 3 1/2 years, more than double the percentage effect of futures prices. And a 10-percent increase in lumber prices would begin lifting shelter prices after 14 months, 9 months sooner than the futures price increase. Shelter prices would then rise nearly 5 percent over a 33-month period, after the lag of 14 months.

Simulations show that following a one-time 10-percent increase in the national price index for lumber, futures prices react quickly and sharply, with most of the

increases occurring in the first 3 months, and then tapering off by the end of a year. Following that one-time 10-percent increase in lumber prices, the average increase in the futures price is 16 percent, spread over a year.

Conversely, a one-time 10-percent increase in the futures price would mean lumber prices would increase 3.8 percent over 14 months, with most of the increase coming in the first 2 months.

### Housing Prices Take Longer to React

Construction companies take time to plan, build, and sell housing. This is reflected in the delayed reactions between futures market performance and housing prices. A futures contract is a commitment to deliver or accept delivery of a commodity at a specified price on some future date. Contracts are actively traded every day, and liquidity in the futures market is much greater than in the housing market. Futures prices can react quickly to new information. Prices of construction materials, and especially of housing and shelter, take longer to react to changes in market conditions.

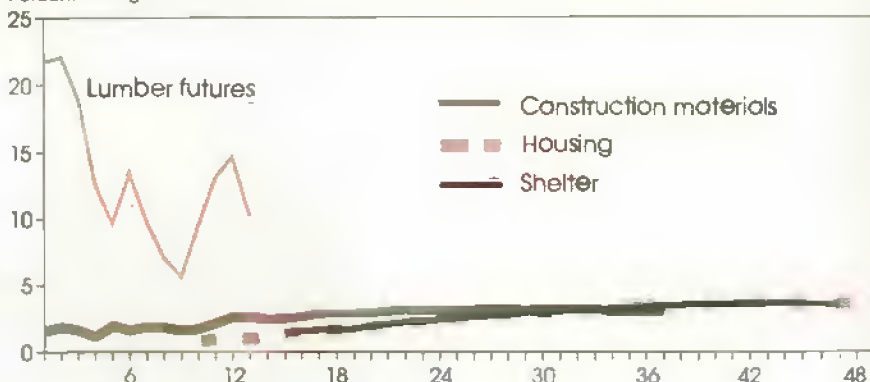
In addition, the lumber traded in the futures contract is only one part of the national lumber market. The only lumber futures contract traded on the Chicago Mercantile Exchange is for Spruce-Pine-Fir, 2x4, Standard and Better grade. The lumber is produced primarily in Canada and used mostly in construction. So the lumber futures price does not reflect all of the shifting supply-and-demand forces in all of the different lumber markets in the nation.

Housing services are made up of more than lumber. The index of housing prices includes a broad range of items, including services of both owner-occupied and rental structures, as well as heating fuel, furnishings, and maintenance prices. Shelter is a narrower group of products, focusing on services of owner-occupied and rental structures.

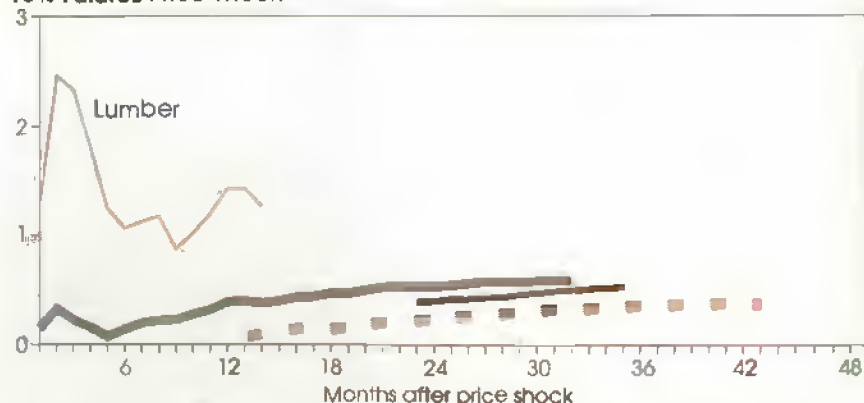
### Lumber Price Shocks Have Faster and Greater Impact Than Lumber Futures on Housing Prices

#### 10% Lumber Price Shock

Percent change



#### 10% Futures Price Shock



Percent change in prices as result of shock. Model simulations based on historical data, 1976-92. Only points that are statistically different from zero at the 5-percent level are plotted. Shelter includes residential rental services and homeowner equivalents. Housing includes heating and cooking fuels, furnishings, general operations, and general upkeep.



## Farm Finance

## About The Model...

In this analysis, a monthly vector autoregression model was constructed using the prices of lumber futures, and indexes of lumber prices, wholesale construction materials prices, consumer housing prices, and consumer shelter prices from January 1976 to December 1992. The Bureau of Labor Statistics supplied the monthly producer price index values for lumber and construction materials and the consumer price indexes for housing and shelter for urban consumers.

The lumber futures price was the closing price of the contract nearest to expiration, except during the delivery month when the contract of next nearest expiration was used. This may have introduced some seasonal variations, but such variations and other time-dependent influences are accounted for in the model.

To see how the markets react to each other, and to produce the results reported here, a one-time 10-percent increase was simulated in futures prices and in lumber prices. The model is linear, so results from the 10-percent change can be multiplied by 2 to observe the effects of a 20-percent change and by -1 to see the effects of a 10-percent price decrease.

	Response to price change				
	Lumber	Futures	Materials	Housing	Shelter
	Percent				
Lumber price increase (10 percent)	—	16.0	4.8	5.4	5.0
Futures price increase (10 percent)	3.6	—	2.2	2.6	1.0


### Radical Change In Market Structure?

In general, lumber prices have not always been as variable as they have during the last 2 years. Prior to 1991, the average annual change in lumber prices was 6 percent. To explain the recent rise in the level and variability of prices, analysts cite cutbacks and uncertainty in the lumber supply, environmental concerns, and the increase in demand for lumber as the economic recovery lifts housing demand.

As with all models, if the fundamental structure of the market has undergone a radical break with the past, the results would have limited applicability to the

current situation. But despite increased volatility, the structure of lumber markets appears to be unchanged. The restraints on timber supplies over the past couple of years are not much different in character from the intermittent restraints on supplies caused by other impacts, such as railroad and mill workers' strikes. Prices fluctuated sharply during those events as well, but the markets continued to balance available supplies with demand.

Lumber remains a basic commodity traded in an auction-like setting, with many buyers and sellers linked by an efficient information network.

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## Environment &amp; Resources



Renewable Fuels Association

## Technology Lowers Ethanol Costs

In the last 10 years, technological innovation in the ethanol production process has reduced costs dramatically. Energy is the largest operating cost in ethanol production, and reduction in energy use has accounted for most of the cost savings. A shift to larger plants and the adoption of energy-saving innovations have reduced the energy required to produce a gallon of ethanol by nearly two-thirds.

The use of improved strains of yeast for fermentation has also contributed to cost reductions. These innovations have collectively lowered the cost of producing a gallon of ethanol from \$1.35-\$1.45 per gallon in 1980 to less than \$1.25 in 1992, a 34-percent decline in inflation-adjusted terms.

Similar cost reductions will be achieved in the next 10 to 15 years if a host of new innovations can be successfully integrated into production facilities. These innovations are the product of recent advances in scientific fields as diverse as

## Environment & Resources

### Regulatory Environment Will Affect Ethanol's Future

Ethanol-blended gasoline currently receives a 5.4-cent-per-gallon excise tax exemption for 10-percent blends. Coupled with this Federal support are various state and local incentive schemes that provide additional support. The Federal support, without which the production of ethanol would be largely uneconomical, is in effect until the year 2000.

Major increases in short-run production, however, may be related to the outcome of regulatory interpretation and legislation. The new Clean Air Act (CAA) requires the nine highest ranking ozone nonattainment areas to sell reformulated gasolines beginning in January 1995. The recent EPA supplemental notice of proposed rulemaking on reformulation would offer an incentive for adding renewable oxygenates such as ethanol-blended gasoline. Rules for the reformulated gasoline program are under review and open for comment; finalization has not yet occurred. Two ethanol producers have announced a moratorium on the construction of new plants pending the outcome of the rule-making.

Ethanol is also playing a strong role in a Federal Oxygenated Fuels program which began in November 1992. The CAA mandated the Oxygenated Fuels program for 39 urban areas which are either moderate or serious CO nonattainment areas.

The ethanol ethers, ethyl tertiary butyl ether (ETBE) and tertiary amyl methyl ether (TAME), could also play a potentially important role in a reformulated gasoline program. Unlike 10-percent ethanol blends, ethanol and methanol ethers help reduce emissions of volatile organic compounds. Ethanol ethers have the additional advantage of being produced from a renewable resource.

genetic engineering and materials science. For example, genetically altered yeasts that tolerate high concentrations of ethanol can lower energy costs.

The impact of scientific advances is not limited to innovations in production facilities. Farm practices that raise corn yields, and lower input costs, could mean lower prices for corn, the primary feedstock in ethanol production. In addition, development of high-value uses for by-products of ethanol production will also generate additional revenue.

### Innovations at The Plant Level

Ethanol plants are achieving a high level of control over the production process through the use of membranes—thin sheets of semiporous material that selectively filter desired substances from the

production stream. One experimental design would allow water and ethanol to penetrate a membrane while trapping the starch and yeast in the fermenter. With the yeast retained, fermentation can proceed continuously at a fraction of the conventional batch rate of 40-50 hours. Coupled with energy-efficient distillation, continuous fermentation with membranes could considerably reduce equipment requirements of plants constructed in the next few years.

Membranes also are likely to be used in the saccharification stage, in which corn starch is converted to sugar for fermentation. Enzymes and starch are retained, while glucose and water are allowed to pass through. By reducing saccharification time in a wet-milling plant to 10-15 hours and reducing enzyme requirements by a factor of 10, this process could shrink operating costs by 1.2-1.5 cents per gallon of ethanol.

The development of low-cost reliable membranes may allow many plants to recover high-value by-products and to lower operating costs at many points in the production process. The energy and equipment needed to dry the by-products could be significantly reduced by running liquid components through a micro-filtration unit to separate excess water. By-products such as lactic acid may then be recovered and concentrated through a system of membranes. Higher value, low-volume by-products, such as citric acid or sorbitol, may also be extracted as more sophisticated membrane technology becomes available.

Improving the fermenting organism is another method of lowering operating costs. The development of yeasts that can function in higher ethanol concentrations could lower the energy costs of distilling alcohol by 0.8 to 1.2 cents per gallon of ethanol. In the longer run, a wholly different fermentation organism may replace yeast. In laboratory testing, the bacterium *Z. mobilis* has speeded fermentation, raised alcohol yields slightly, and allowed fermentation at higher temperatures.

Although these organisms are likely to reduce the cost of refining ethanol from corn starch, the greatest potential for biological improvements lies with the development of new organisms that can convert biomass other than corn into ethanol. For example, converting the hull and other fiber portions of the corn kernel into ethanol could raise yields from 2.6 to nearly 3 gallons per bushel. Organisms have been developed that are capable of converting most organic material into ethanol and other products.

### Alternative Feedstocks Soon Feasible?

The relatively high cost of corn, limited markets for corn ethanol by-products such as corn gluten feed and dried grains and solubles, and competition for land suitable for corn cultivation are likely to limit massive increases in the production of ethanol from corn. Doubling of ethanol production from corn would require approximately 350 million additional bushels of corn each year, put upward



pressure on the price of corn, and double the supply of by-products. Ethanol made from other food crops, such as potatoes and sugarcane, would also be expensive because of their high value as human food products.

Production of ethanol on a large enough scale to substitute for gasoline is likely to come from other forms of available biomass. Among the lower cost—and more abundant—forms of biomass are agricultural residues, waste streams from agricultural processing, municipal solid wastes, yard and wood wastes, recycled newspapers, and crops grown expressly for their energy content.

Conversion of waste materials and agricultural residues into ethanol could produce up to 3.8 quad of energy each year (1 quad =  $10^{15}$  Btu). Crops grown expressly for energy content on excess cropland could produce 11.4 quad of energy annually, according to a 1991 article in *Science*. Together these sources of energy would account for half the total annual consumption of energy in the U.S. transportation sector.

The technology for converting most biomass into ethanol has until recently been unproven and too costly for commercial-scale ventures. Although simple sugars are ultimately fermented to form ethanol from both corn and biomass feedstocks, the sugars in biomass are more tightly bound in long chains, and some simple sugars are different from the sugars in corn.

A pair of recent advances has largely overcome these problems. First, a process that uses enzymes to break down the bonds between chains of sugar has been well tested, and research has now shifted to producing these enzymes inexpensively. Second, genes that instruct other organisms to ferment different sugars have been introduced into *E. coli*. The resulting organism is capable of fermenting a variety of sugars with high productivity and with fermentation yields that match those of common yeast strains.

In the long term, biomass-derived ethanol may begin to complement ethanol derived from corn. The conversion of biomass into ethanol would greatly increase the supply and variety of feedstocks available for ethanol production. Operating and capital costs for biomass conversion plants are estimated to be comparable to costs at corn conversion plants, and the cost of biomass feedstock, especially waste materials, can be distinctly lower. Technical barriers to economical biomass conversion, however, still exist, and lower cost levels may be achieved only after pilot plants are constructed and the production process is refined.

## Further Cost Savings Needed

Ethanol fuel supplements imported oil with a domestic renewable resource that provides some environmental benefits. The use of ethanol as a fuel for vehicles in the U.S. has grown from insignificance in 1977 to nearly 900 million gallons in 1991. An ethanol industry has emerged through a combination of government support and new technologies, which enabled large-scale production of ethanol from domestic resources.

Growing consumer acceptance of ethanol-blended fuels, incentives to gasoline blenders, and decreasing costs of production were responsible for the swift rise in ethanol production. In a climate of fiscal restraint and competition from other alternative fuels, however, the continued growth of ethanol production will depend on the introduction of a new set of cost-saving innovations into the production process.

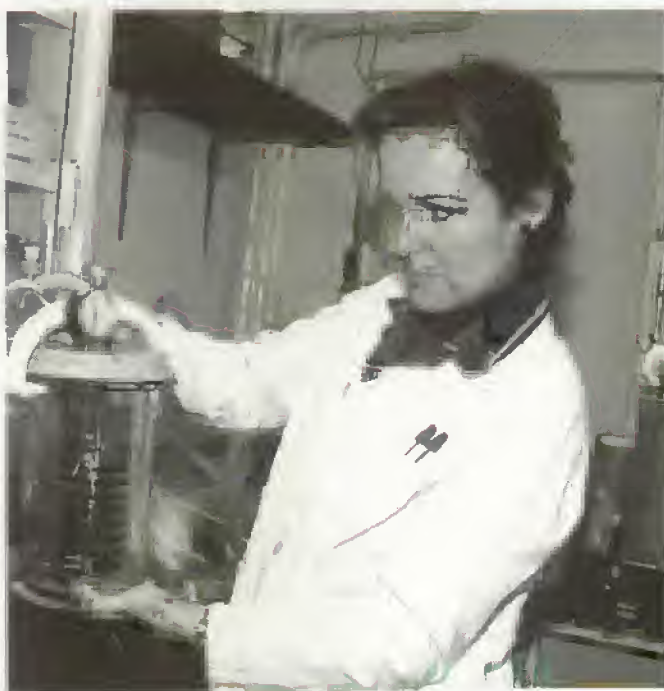
[Neil Hohmann (202) 219-0429] **AG**

## Read More About It

The research results cited in this article are discussed in detail in a report by USDA's Economic Research Service—"Emerging Technologies in Ethanol Production," ERS Report No. AIB-663, January 1993 (\$9 per copy). Additional ERS analysis on the effects of increased ethanol production on agriculture can be found in "Ethanol and Agriculture," May 1993 (ERS Report No. 667, \$6 per copy).

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## Special Article



Food Safety and Inspection Service, USDA

## Food Safety Issues: Modernizing Meat Inspection

The classic food safety image of a white-jacketed inspector eyeing meat in a slaughterhouse may soon be joined by a scientist peering through a microscope. The Federal government is stepping up surveillance of microbial foodborne contaminants, as the public adjusts its perception of food risks. The recent disease outbreak caused by *Escherichia coli* 0157:H7, a bacterium, has accelerated government activities aimed at improving the U.S. meat and poultry inspection system.

In this outbreak, hamburgers containing *E. coli* 0157:H7 were linked to hospitalization of children in the state of Washington, and subsequent investigation revealed other cases in California, Nevada, and Idaho. The Centers for Disease Control and Prevention (CDC) has confirmed that more than 500 cases of illness and four deaths were associated with the outbreak.

CDC researchers estimate that between 7,668 and 20,448 persons become ill from exposure to *E. coli* 0157:H7 annually in the U.S. While most are mild cases, between 1,380 and 3,681 (18 percent) lead to hospitalization, and over 100 result in death. USDA's Economic Research Service (ERS) estimates that the medical costs and the costs of lost productivity attributed to *E. coli* 0157:H7 range from \$229 million to \$610 million annually.

The meat that was involved in the recent outbreak did pass Federal inspection. However, the present U.S. inspection system is the product of an era when less scientific knowledge was available about the microbial origins of foodborne disease. The system uses sight, touch, and smell, rather than systematic microbiological testing, to detect potential safety problems.

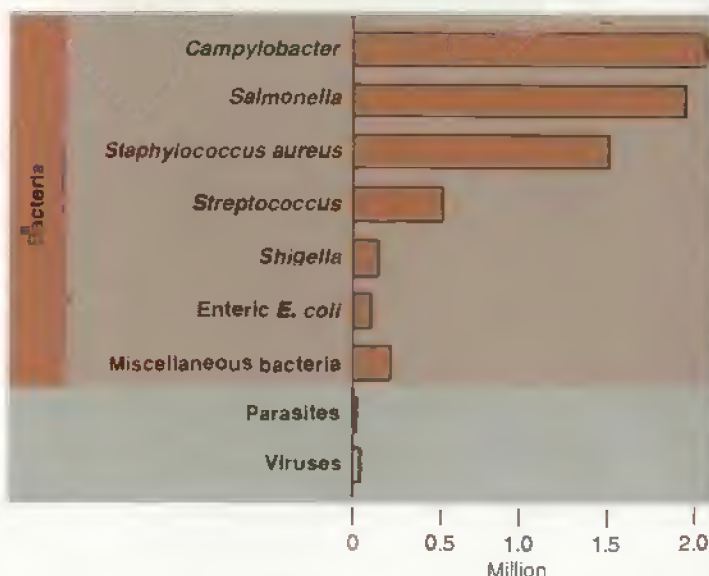
USDA's Food Safety and Inspection Service (FSIS) is now reviewing methods for better assessing and controlling microbial pathogens in raw meat and poultry.

USDA has also announced a "two-track" strategy aimed at improving the performance of current meat and poultry safety programs while designing the programs of the future. This plan is intended to address each link in the chain from farm to table—the live animal, the slaughter process, the processing plant, the food-service process, and consumer education. The plan includes the FSIS and Animal and Plant Health Inspection Service portions of the USDA Pathogen Reduction Program.

Government is not acting alone. The food industry is also conducting research on pathogen reduction, establishing better manufacturing processes, and educating the public on safe food storage, handling, and preparation practices. As government, industry, and consumer groups put more emphasis on consumer education in the wake of the *E. coli* 0157:H7 outbreaks, the gap between public perception and scientific understanding of health risks from foodborne illness may begin to close.

While consumers often have ranked residues from pesticides as the number-one health threat, scientific evidence indicates that foodborne microbial contaminants are the top threat to public

### Most Cases of Foodborne Disease Are Caused By Bacteria



Estimated number of cases annually. Parasites: *toxoplasma*, *trichinella*, *taenia saginata*, and *taenia solium*. Viruses: hepatitis A. Adapted from *Closing the Gap: The Burden of Unnecessary Illness*, Oxford University Press, 1987.



health. Foodborne illnesses from *E. coli* 0157:H7 are just the tip of the iceberg of foodborne illnesses from all microbial sources.

### Foodborne Disease: Costs to Society

Microbial contamination of food is estimated to cause from 6.5 to 33 million human illnesses and 6,000 deaths annually in the U.S. Of the various sources of microbial contamination—bacterial, parasitic, and viral—bacterial agents cause the largest number of foodborne disease outbreaks. In addition to consumption of food, the pathways of human exposure include direct and indirect contact with a live animal, direct and indirect contamination by the carcass or other animal product, and cross-contamination with other foods.

About 92 percent of the 54,540 cases of foodborne disease confirmed by CDC between 1983 and 1987 were caused by bacterial agents, including *Clostridium botulinum*, *E. coli*, *Salmonella*, *Shigella*, *Staphylococcus aureus*, and *Streptococcus*. *Salmonella* was the most frequent of the bacterial sources, causing 57 percent of the reported outbreaks, 62 percent of the cases, and 30 percent of the deaths.

Most cases of foodborne disease are not reported. However, CDC has analyzed the limited number of reported cases and has identified some of the foods responsible for foodborne disease outbreaks. The source of about 13 percent of the cases caused by all foodborne pathogens between 1973 and 1987 was dairy. About 10 percent were associated with poultry and 9 percent with beef, while seafood, pork, produce, and eggs were the sources in, at most, 5 percent of the illnesses. In over 55 percent of the cases, the cause was unknown.

Among the illnesses caused specifically by *E. coli* 0157:H7, beef has been identified as the source in about half the outbreaks reported to CDC in the last decade, and unpasteurized apple cider, unpasteurized milk, water, raw potatoes, turkey roll, and mayonnaise have also been implicated.

USDA's Economic Research Service has estimated that medical costs and productivity losses from foodborne disease caused by several major bacterial pathogens—*Salmonella*, *Campylobacter jejuni* or *coli*, *E. coli* 0157:H7, and *Listeria monocytogenes*—are between \$2.5 and \$3.4 billion a year. Costs for several major parasitic foodborne diseases—*Toxoplasma gondii*, *Trichinella spiralis*, *Taenia saginata*, and *Taenia solium*—were estimated at about \$2.6 billion dollars a year.

ERS used the cost-of-illness (COI) method to estimate medical costs and lost productivity. Medical costs were estimated using nationwide data bases such as the American Hospital Association's hospital room rates and Medicare's reimbursement rate for procedures such as kidney transplants. Productivity loss is the reduction in production when workers were ill and missed

### Dollar Costs Resulting from Foodborne Pathogens Reach Into the Billions

Pathogen	Cases	Deaths	Annual medical & productivity costs
--- Number ---			\$ million
Bacterium:			
<i>Salmonella</i>	1,920,000	960-1,920	1,188-1,588
<i>Campylobacter jejuni</i> or <i>coli</i>	2,100,000	120-360	907-1,016
<i>Escherichia coli</i> 0157:H7	7,668-20,448	146-389	229-610
<i>Listeria monocytogenes</i>	1,526-1,581	378-433	209-233
Parasite:			
<i>Toxoplasma gondii</i>	2,090	42	2,628
<i>Trichinella spiralis</i>	131	0	0.8
<i>Taenia saginata</i>	894	0	0.2
<i>Taenia solium</i>	210	0	0.1

Annual costs, 1992. Excludes toxoplasmic encephalitis infections in 2,250-10,200 AIDS patients, 50 percent of which may have a foodborne origin. Costs exclude cysticercosis, which may have indirect foodborne transmission.

work. The daily wage of an individual is used as a proxy for the value of output produced in a day's work. The Bureau of Labor Statistics reports average weekly earnings. The imputed dollar value of time spent by parents caring for children, and the cost of paid caretakers, are included in the estimates. Productivity loss for those who die is the present value of lifetime earnings.

According to ERS estimates, deaths are the greatest component of costs from several major bacterial diseases (*Escherichia coli* 0157:H7, *Listeria monocytogenes*, and *Salmonella*). However, for the most costly parasitic disease, toxoplasmosis, the greatest category of costs is the reduction in earnings due to lifetime disability.

The COI measure is only a lower bound of the true social cost of illness because the opportunity costs of self-protection behavior such as maintaining a highly sanitary kitchen are ignored. For microbial foodborne contaminants, these opportunity costs may be a part of daily life whether one eats at home or in a restaurant.

Other methods for estimating the benefit to society of safe food are likely to assign higher values than COI to food safety because they are more comprehensive and include compensation for pain and suffering, the loss of leisure time, medical expenses, and lost productivity. Also, people with a preference for higher risk foods, such as hamburger grilled rare, may be willing to pay a premium for safer ground beef.

## Special Article

### Government/Industry Collaboration

One victory in the war against food pathogens illustrates how cooperation between government and industry can lead to safer food for consumers.

In the late 1960's, the production of cooked and roast beef began to shift from small delicatessens to small, specialized processors. During the same period, USDA's Food Safety and Inspection Service approved the pumping of solutions of flavoring agents into beef, and consumers were able to enjoy unique flavors.

However, an unexpected problem emerged: the act of pumping liquid into the meat transferred bacteria from the meat's surface to its interior. Since, in accordance with consumer preferences, the interior meat was often cooked only until rare, *Salmonella* present in the interior was able to survive the cooking process.

As a consequence, in 1969 and several times again in the years 1971-77, there were outbreaks of human salmonellosis from cooked beef. Then in 1977, FSIS passed emergency regulations requiring that cooked beef be heated to an internal temperature of 145° F. Though the industry reacted negatively to this initial regulation, it organized a coalition of trade groups to support the development of new data in concert with USDA.

The result was that, in 1978, new cooked beef regulations were mandated, permitting 15 combinations of temperature and holding time. The regulations allowed processors substantial flexibility and permitted the safe preparation, under precisely controlled conditions, even of beef products cooked very rare. Though largely effective, the regulations were tightened following a single 1981 outbreak in the Northeast.

### Meat Inspection System Still Evolving

The current U.S. meat and poultry inspection system was developed through a gradual process of evolution, according to a 1985 National Research Council report. Meat inspection in colonial times was rudimentary and not a matter of any great public concern. The raising and slaughtering of food animals was a

local enterprise. Consumers knew the butcher they dealt with and probably even the farmers who supplied the butcher. As the country developed, the distance between producers and consumers increased.

In the mid-1800's, European scientists discovered microbes as the cause of infectious diseases. The press gave prominent attention to quality problems in food products beginning in the early 1880's, and some European countries—fearing *trichinae*—began to restrict imports of U.S. hog bellies. Acting to reassure Europeans, the U.S. government passed the first meat inspection statute, the Meat Inspection Act of 1890.

The Federal Meat Inspection Act of 1906 is the primary basis for the current inspection system. This legislation mandated inspection of all meat and meat products involved in interstate commerce. The act required both antemortem and postmortem inspection and established sanitary standards for slaughter- and processing facilities. Other amendments and laws have since been passed, such as the Poultry Products Inspection Act of 1957, which was prompted by increased U.S. consumption of poultry.

Today, responsibility for ensuring the safety and quality of meat and poultry products falls primarily on three Federal agencies: the Food and Drug Administration (FDA), the Agricultural Marketing Service (AMS), and the Food Safety and Inspection Service (FSIS).

Operating under the Federal Food, Drug, and Cosmetic Act and its various amendments, FDA oversees the safety of domestic and imported food products. FDA establishes standards of identity and quality, reviews and approves food and color additives prior to marketing, and (except for meat, poultry, and some egg products) regulates food processing to protect the public health. Seafood comes under FDA jurisdiction.

Generally, FDA inspects food establishments once every 3-5 years. Since the legislation authorizing FDA activity allows food to enter the market without preapproval, the agency's ability to head off food safety problems before they occur is limited. In order to take action, FDA must prove there is actual or potential contamination or establish that conditions are unsanitary.

In contrast, the statutes governing AMS and FSIS put the shoe on the other foot. Under the inspection programs operated by these USDA agencies, the food industry is required to prove safety and wholesomeness before food products may be marketed.

AMS has food safety responsibilities for eggs and egg products. It operates under the Egg Products Inspection Act of 1970, passed in response to disease outbreaks in the late 1960's attributed to eggs and egg products contaminated with *Salmonella*. AMS conducts quarterly inspection of certain hatcheries and egg-packing plants and continuous inspection of plants that process egg products.



## USDA Actions To Reduce *E. coli* Outbreaks

In recent testimony before the Senate Committee on Agriculture, Nutrition and Forestry, the Administrator of FSIS outlined plans for reducing the likelihood of future outbreaks of *E. coli* O157:H7. These include the following activities.

### *Live animal operations:*

- Conduct comprehensive research to determine the source and incidence of *E. coli* O157:H7 and other pathogens.
- Conduct on-farm investigations to confirm current assumptions about sources of contamination.
- Develop rapid test methods for identifying pathogens.
- Establish an on-farm pathogen prevention program.

### *Slaughter plants:*

- Expand microbiological baseline program to immediately add cows to national microbiological baseline monitoring (now limited to steers and heifers); expand baseline monitoring to poultry and swine.
- Ensure that current slaughter and processing methods are adequate to reduce carcass contamination and to prevent temperature abuse and other potential causes of proliferation of bacteria.
- Use organic acid and other preventive substances to reduce pathogens on surfaces of beef carcasses.
- Test "disabled" and other "suspect" animals to determine if *E. coli* O157:H7 is more prevalent in "sick" animals.

- Enhance veterinary coverage of higher risk slaughter plants.
- Mandate improved recordkeeping for slaughter plants.

### *Processing plants:*

- Establish and enforce strict time and temperature requirements to control bacteria in meat trimmings.
- Finalize "patties" regulation for cooking and handling of patties produced at establishments.
- Mandate safe-handling labels for all raw meat and poultry products.
- Use potential public health risk to make staffing and inspection task adjustments in processing plants.
- Ensure complete and accurate recordkeeping for all transactions.

### *Food service:*

- Educate food handlers, including fast-food restaurant employees, about proper cooking and handling.
- Require "safe handling" inserts and prominent cooking labels on all school lunch products.
- Enhance model codes; work with FDA and the states to assure adequate controls in the model retail code.

FSIS is the Federal agency charged with inspecting slaughterhouses and meat and poultry processing plants. Its responsibilities are enumerated in the meat act (1906) and the poultry act (1957). As mandated by these laws, inspection of slaughtering plants is continuous if interstate commerce is involved, and animals may not be slaughtered unless a Federal inspector is present.

While the frequency of processing plant inspection is not explicitly specified by the meat or poultry acts, these laws have been interpreted by the Office of the General Counsel of FSIS as calling for daily inspection. According to a General Accounting Office report, in fiscal 1991 about 7,350 FSIS in-plant inspectors monitored about 400 plants devoted exclusively to slaughtering

operations, 4,630 plants devoted to processing only, and 1,070 plants that combined both operations. This inspection process required over 9,000 staff years.

FSIS inspection in slaughtering plants relies primarily on sight, smell, and touch. This approach developed in an era when the goal was to protect consumers from visible lesions and diseases that exhibit some visible symptom. However, scientists and policymakers now recognize that inspections of this type are inadequate for detecting many disease-causing microorganisms, such as *E. coli* O157:H7.

The inability of the current system to detect many microorganisms needs to be addressed because scientists now realize that it

## Special Article

is the hard-to-detect pathogens, not the obvious abnormalities, that constitute the most serious foodborne-disease threat to human health. USDA has proposed altering the meat inspection program to strengthen examination for pathogens and possibly deemphasize visual inspection.

USDA has also proposed a number of changes in the meat and poultry inspection system to reduce the likelihood of future outbreaks of *E. coli* 0157:H7 and other foodborne disease organisms. These changes will recognize the interdependent roles of government, industry, and consumers in addressing food safety.

### *Meat Industry Support For Education & Labeling*

Consumers are the last line of defense against foodborne disease. USDA recently announced it will require labels with cooking and handling instructions on all raw meat and poultry products. Consumer labeling, for which there is growing industry support, will help consumers understand ways to safeguard against illness caused by improper preparation of meat consumed at home or at a retail outlet.

The American Meat Institute (AMI), the Food Marketing Institute, the National Livestock and Meat Board, and other industry groups are sponsoring a host of other consumer education and food safety activities. These include:

- Informing the end user of proper handling techniques by distributing simple, bilingual instructions throughout the meat, poultry, retail, and food-service industries.
- Developing brochures for the meat, poultry, retail, and food-service industries on *E. coli* 0157:H7 and other microorganisms that convey three simple messages: cool it, clean it, and cook it properly.
- Sponsoring a special educational course in 1993 for meat industry managers on the development and implementation of Hazard Analysis and Critical Control Point (HACCP) plans for ground meat and poultry; through this course, industry management can learn to develop special plans for their plants to identify the points where problems can arise in meat production and to indicate how to prevent those problems.
- Conducting studies to determine the effect of irradiation on *E. coli* in beef products, and conducting a consumer opinion poll on irradiated beef.

Meatpackers and processors are also establishing new quality control programs to improve product quality, shelf life, and customer satisfaction by reducing microbial contamination. Packers have increased use of approved organic acid sprays for

sanitizing carcasses. Such sprays significantly reduce bacterial contamination in beef and pork on the kill floor.

In 1989, AMI published Good Manufacturing Practices (GMP's) for cooked, uncured meat patties. The GMP's, which require cooking the patties to 155° F, are intended to prevent illness from precooked patties. The GMP's also provide explicit safe-handling and cooking guidelines for meat processors, retailers, and food-service establishments to prevent future problems with *E. coli* 0157:H7.

### *Risk Assessment Creating New Standards*

The Washington state outbreak demonstrates both the difficulty of identifying the incidence of foodborne disease and the need for new data collection systems. The CDC reported: "Despite the magnitude of this outbreak [with 500 culture-confirmed cases and four deaths in four states], the problem may not have been recognized in three states if the epidemiological link had not been established in the state of Washington."

Risk assessment is the process of identifying and characterizing hazards and determining the probability that illness will occur. The Secretary of Agriculture is following the recommendation of the National Academy of Sciences by planning to base meat inspection system improvements on quantitative risk assessment.

In January 1993, a working group in the White House Office of Science and Technology identified food safety risk assessment as an area needing additional research. It suggested that risk assessment be used "to determine the most serious, frequent, and costly public health problems" caused by chemical and microbial contaminants in food. It recommended that acute and chronic health effects from foodborne disease be better identified. It also advised that food safety risk assessments be more standardized. Currently, microbial risks are often underestimated, while pesticide residue risks are overestimated.

A joint FSIS/FDA/National Marine Fisheries Service committee that includes members outside the agencies is drafting a risk assessment guide to delineate standards and criteria for quantitatively assessing microbial risks in foods. FDA is currently estimating approximations of dose-response relationships of several microbial pathogens. FSIS is developing microbiological baselines for beef and poultry and has established an internal working structure to address risk analysis needs.

Public hearings on meat inspection, being held by FSIS in six major cities this spring and summer, are aimed at integrating consumers into the process of improving the inspection system. [Mike Weiss and Tanya Roberts (202) 219-0864, Hal Linstrom (202) 219-0712] **AO**



*Video Documentary*

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## Ethanol: Economic and Policy Tradeoffs



**T**he U.S. experimented with alcohol fuels as early as 1913, and today concern about environmental quality, energy security, and the agricultural economy has once again stirred public interest in the benefits of ethanol.

**"Ethanol: Economic and Policy Tradeoffs"** reviews the history of ethanol production and the make-up of the current ethanol industry, and investigates how ethanol can contribute to national goals. This educational program establishes an information base for making educated decisions concerning the ethanol industry.

Central to the program is the idea of tradeoffs. Ethanol may save money in one area and drain the treasury in another. Or ethanol may raise prices for one crop and drive other crop prices down. As the program explains, "virtually every economic and policy aspect of ethanol production involves a tradeoff in some other economic or policy area." 11/89. Order VT006; \$15.00.

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# Statistical Indicators

## Summary Data

Table 1.—Key Statistical Indicators of the Food & Fiber Sector

	1992				1993				
	II	III	IV	Annual	I	II F	III F	IV F	Annual F
Prices received by farmers (1977=100)	141	138	137	140	140	—	—	—	—
Livestock & Products	157	159	157	157	162	—	—	—	—
Crops	123	117	117	121	117	—	—	—	—
Prices paid by farmers, (1977=100)									
Production items	174	175	175	174	176	179	—	—	—
Commodities & services, interest, taxes, & wages	191	192	192	191	194	197	—	—	—
Cash receipts (\$ bil.) 1/	172	177	163	169	—	—	—	—	—
Livestock (\$ bil.)	86	85	89	86	—	—	—	—	—
Crops (\$ bil.)	87	92	73	83	—	—	—	—	—
Market basket (1982-84=100)									
Retail cost	138	138	139	138	141	—	—	—	—
Farm value	103	104	104	103	105	—	—	—	—
Spread	157	157	158	157	160	—	—	—	—
Farm value/retail cost (%)	26	26	26	26	26	—	—	—	—
Retail prices (1982-84=100)									
Food	138	138	139	138	140	—	—	—	—
At home	137	137	137	137	139	—	—	—	—
Away from home	140	141	142	141	142	—	—	—	—
Agricultural exports (\$ bil.) 2/	10.1	9.7	11.8	42.4	11.6	10.3	8.8	11.8	42.5
Agricultural imports (\$ bil.) 2/	6.2	6.2	6.1	24.3	6.2	6.3	5.9	6.1	24.5
Commercial Production									
Red meat (mil. lb.)	9,915	10,408	10,379	40,795	9,716	10,102	10,552	10,658	41,028
Poultry (mil. lb.)	6,624	6,816	6,644	26,398	6,531	6,885	7,020	6,825	27,261
Eggs (mil. doz.)	1,454	1,464	1,501	5,883	1,459	1,470	1,480	1,510	5,919
Milk (bil. lb.)	39.1	37.5	37.2	151.7	37.8	39.3	37.0	37.1	151.4
Consumption, per capita									
Red meat and poultry (lb.)	51.4	52.8	53.7	208.7	50.4	51.8	53.1	54.6	209.6
Corn beginning stocks (mil. bu.) 3/	6,541.1	4,561.0	2,738.6	—	1,100.3	7,906.4	5,678.6	—	—
Corn use (mil. bu.) 3/	1,984.5	1,827.8	1,641.6	7,916.1	2,674.1	2,228.8	—	—	8,470.0
Prices 4/									
Choice steers—Neb. Direct (\$/cwt)	75.94	73.88	75.86	75.36	80.65	77-81	70-76	71-77	75-79
Barrows & gilts—IA, So. MN (\$/cwt)	45.70	44.39	42.48	43.03	44.92	45-49	43-49	39-45	43-47
Broilers—12-city (cts./lb.)	52.3	54.5	53.3	52.6	53.1	54-58	52-58	49-55	52-56
Eggs—NY gr. A large (cts./doz.)	62.0	64.5	71.4	65.4	75.6	70-74	70-76	72-78	72-76
Milk—all at plant (\$/cwt)	12.87	13.47	13.10	13.10	12.33	12.85-13.25	13.05-14.05	12.30-13.3	12.55-13.25
Wheat—KC HRW ordinary (\$/bu.)	3.94	3.45	3.73	3.91	3.82	—	—	—	—
Corn—Chicago (\$/bu.)	2.59	2.26	2.12	2.41	2.18	—	—	—	—
Soybeans—Chicago (\$/bu.)	5.93	5.51	5.52	5.68	5.83	—	—	—	—
Cotton—Avg. spot 41-34 (cts./lb.)	56.4	57.3	50.4	53.9	55.18	—	—	—	—
	1985	1986	1987	1988	1989	1990	1991	1992	1993 F
Farm real estate values 5/									
Nominal (\$ per acre)	713	640	599	632	661	668	681	684	700
Real (1982 \$)	657	568	518	530	533	517	505	487	486

1/ Quarterly data seasonally adjusted at annual rates. 2/ Annual data based on Oct.-Sept. fiscal years ending with year indicated. 3/ Sept.-Nov. first quarter, Dec.-Feb. second quarter; Mar.-May third quarter; Jun.-Aug. fourth quarter; Sept.-Aug. annual. Use includes exports & domestic disappearance. 4/ Simple averages, Jan.-Dec. 5/ 1990-92 values as of January 1. 1988-89 values as of February 1. 1984-85 values as of April 1. F = forecast, — = not available.

New data are being incorporated into farm income statement. See page 57.



## U.S. &amp; Foreign Economic Data

Table 2.—U.S. Gross Domestic Product &amp; Related Data

	Annual			1992				1993
	1990	1991	1992	I	II	III	IV	I P
\$ billion (quarterly data seasonally adjusted at annual rates)								
Gross domestic product	5,522.2	5,677.5	5,950.7	5,840.2	5,902.2	5,978.5	6,081.8	6,158.8
Gross national product	5,542.9	5,694.9	5,961.9	5,859.8	5,909.3	5,992.0	6,086.8	—
Personal consumption expenditures	3,748.4	3,887.7	4,095.8	4,022.8	4,057.1	4,108.7	4,194.8	4,237.2
Durable goods	464.3	446.1	480.4	469.4	470.6	482.5	499.1	500.6
Nondurable goods	1,224.5	1,251.5	1,290.7	1,274.1	1,277.5	1,292.8	1,318.8	1,320.3
Clothing & shoes	206.9	209.0	221.8	216.5	217.4	224.3	229.0	228.1
Food & beverages	601.4	617.7	630.9	627.9	623.2	627.3	645.2	643.3
Services	2,059.7	2,190.1	2,324.7	2,279.3	2,309.0	2,333.3	2,377.1	2,416.3
Gross private domestic investment	799.5	721.1	770.4	722.4	773.2	781.8	804.3	838.4
Fixed investment	793.2	731.3	766.0	738.2	765.1	766.8	794.0	797.8
Change in business inventories	6.3	-10.2	4.4	-15.6	6.1	15.0	10.3	38.6
Net exports of goods & services	-68.9	-21.8	-30.4	-8.1	-37.1	-36.0	-40.5	-33.1
Government purchases of goods & services	1,043.2	1,090.5	1,114.9	1,103.1	1,109.1	1,124.2	1,123.3	1,118.2
1987 \$ billion (quarterly data seasonally adjusted at annual rates)								
Gross domestic product	4,877.5	4,821.0	4,922.6	4,873.7	4,992.4	4,933.7	4,990.8	5,013.1
Gross national product	4,895.9	4,836.4	4,932.6	4,890.7	4,899.1	4,945.6	4,995.9	—
Personal consumption expenditures	3,260.4	3,240.8	3,314.0	3,289.3	3,288.5	3,318.4	3,359.9	3,369.9
Durable goods	439.3	414.7	439.1	432.3	430.0	439.8	454.4	455.2
Nondurable goods	1,056.5	1,042.4	1,054.1	1,049.6	1,045.6	1,052.0	1,069.4	1,061.9
Clothing & shoes	185.9	181.3	188.3	184.1	184.4	190.8	193.7	190.3
Food & beverages	520.8	515.8	518.4	516.9	513.5	514.3	526.7	522.1
Services	1,764.6	1,783.7	1,820.7	1,807.3	1,812.9	1,826.6	1,836.2	1,852.8
Gross private domestic investment	739.1	661.1	712.8	668.9	713.6	724.9	743.1	776.4
Fixed investment	732.9	670.4	707.6	681.4	705.9	710.0	733.3	740.6
Change in business inventories	8.2	-9.3	5.0	-12.6	7.8	15.0	9.8	35.8
Net exports of goods & services	-51.8	-21.8	-41.8	-21.5	-43.9	-52.7	-49.0	-54.8
Government purchases of goods & services	929.9	941.0	937.8	937.0	934.2	943.0	936.8	921.5
GDP implicit price deflator (% change)	4.3	4.1	2.6	3.1	2.7	2.0	2.3	3.3
Disposable personal income (\$ bil.)	4,042.9	4,209.6	4,430.8	4,360.9	4,411.6	4,433.2	4,517.3	4,580.2
Disposable per. income (1987 \$ bil.)	3,516.5	3,509.0	3,585.1	3,565.7	3,576.0	3,580.5	3,618.2	3,642.7
Per capita disposable per. income (\$)	16,174	16,658	17,346	17,143	17,297	17,332	17,610	17,812
Per capita dis. per. income (1987 \$)	14,068	13,886	14,035	14,017	14,021	13,998	14,105	14,166
U.S. population, total, incl. military abroad (mil.) *	249.9	252.7	255.5	254.3	255.0	255.7	256.5	257.1
Civilian population (mil.) *	247.8	250.6	253.5	252.3	253.0	253.8	254.8	255.3
	Annual			1992		1993		
	1990	1991	1992	Mar	Dec	Jan	Feb	Mar
Monthly data seasonally adjusted								
Industrial production (1987=100)	109.2	107.1	108.8	107.8	111.0	111.4	112.0	112.0
Leading economic indicators (1982=100)	143.8	143.4	148.9	147.9	152.8	152.7	153.5	152.0
Civilian employment (mil. persons)	117.9	116.9	117.6	117.3	118.3	118.1	118.5	118.6
Civilian unemployment rate (%)	5.5	9.7	7.4	7.3	7.3	7.1	7.0	7.0
Personal income (\$ bil. annual rate)	4,664.2	4,828.3	5,058.1	5,009.8	5,194.0	5,221.9	5,227.8	5,280.3
Money stock—M2 (daily avg.) (\$ bil.) 1/	3,345.5	3,445.8	3,497.0	3,467.8	3,497.0	3,488.9	3,475.1	3,473.2
Three-month Treasury bill rate (%)	7.51	5.42	3.45	4.05	3.25	3.06	2.95	2.97
AAA corporate bond yield (Moody's) (%)	9.32	8.77	8.14	8.35	7.98	7.91	7.71	7.58
Housing starts (1,000) 2/	1,193	1,014	1,200	1,318	1,286	1,171	1,189	1,134
Auto sales at retail, total (mil.)	9.5	8.4	8.4	8.3	8.7	8.6	8.0	9.3
Business inventory/sales ratio	1.53	1.55	1.51	1.51	1.46	1.46	1.46	—
Sales of all retail stores (\$bil.) 3/	1,849.8	1,865.5	1,982.4	1,59.9	169.2	169.2	168.7	166.9
Nondurable goods stores (\$ bil.)	1,178.8	1,211.6	1,257.3	102.8	107.3	107.0	108.0	106.8
Food stores (\$ bil.)	369.8	376.9	384.0	31.5	32.7	32.5	32.8	32.3
Eating & drinking places (\$ bil.)	191.0	196.9	201.9	16.8	17.5	17.3	17.2	17.1
Apparel & accessory stores (\$ bil.)	95.8	97.5	105.0	8.3	9.1	9.1	9.1	8.9

1/ Annual data as of December of the year listed. 2/ Private, including farm. 3/ Annual total. R = revised. — = not available.

Note: \* Population estimates based on 1990 census.

Information contact: Ann Duncan (202) 219-0313

Table 3.—Foreign Economic Growth, Inflation, &amp; Exports

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 E	1993 F	1994 F	Average 1982-91
	Annual percent change												
World, less U.S.													
Real GDP	2.4	3.6	3.4	3.0	3.5	4.4	3.5	3.0	1.1	1.1	1.3	2.8	2.9
GDP deflator	8.5	8.0	8.5	7.6	9.0	10.6	10.8	24.2	16.0	49.5	40.3	27.6	11.2
Real exports	2.7	9.7	3.8	2.1	6.0	7.0	7.3	5.9	3.7	2.7	3.0	4.8	4.8
Developed less U.S.													
Real GDP	2.1	3.2	3.4	2.7	3.2	4.5	3.6	3.5	1.4	1.1	0.6	2.3	2.9
GDP deflator	6.4	5.1	4.4	4.0	2.8	3.3	4.1	3.8	3.3	3.5	2.7	2.3	4.5
Real exports	3.5	10.8	5.2	-0.2	2.9	6.2	7.9	6.9	4.8	2.7	2.3	4.6	4.9
Eastern Europe & C.I.S.													
Real GDP	3.6	4.0	2.3	3.6	2.8	3.8	1.5	-3.1	-13.3	-13.5	-7.6	-3.1	0.7
GDP deflator 1/	4.2	5.0	5.4	8.1	12.8	35.3	41.3	192.3	68.9	206.8	93.8	49.8	38.5
Real exports	4.6	6.2	-4.0	9.1	7.6	8.5	-5.3	-6.9	-22.1	-12.0	-2.3	1.8	0.4
Developing													
Real GDP	3.1	4.7	4.0	3.9	4.5	4.4	3.6	3.2	3.7	4.3	4.9	5.0	3.7
GDP deflator	38.7	37.3	38.4	25.5	33.1	26.4	19.2	16.9	14.4	14.9	15.2	14.0	27.6
Real exports	0.4	7.2	1.7	7.5	11.1	9.4	9.0	5.6	5.9	5.1	5.9	6.1	5.8
Asia													
Real GDP	6.2	7.9	5.9	7.2	8.8	9.1	5.5	5.7	5.0	6.7	6.4	6.3	6.8
GDP deflator	6.3	7.5	5.9	4.4	7.8	8.2	6.1	6.4	7.5	7.9	8.9	7.9	6.8
Real exports	6.4	11.3	2.9	19.0	15.8	14.9	8.2	7.3	9.2	7.5	9.5	9.0	9.8
Latin America													
Real GDP	-2.7	3.7	3.8	4.4	3.0	0.0	1.3	-1.3	2.8	1.3	3.0	3.7	1.3
GDP deflator 1/	30.3	40.8	69.0	62.8	125.5	66.5	35.9	29.6	22.7	24.0	20.8	18.5	49.9
Real exports	2.0	12.0	2.0	0.0	8.0	6.8	10.4	3.9	3.1	4.9	4.3	5.0	6.1
Africa													
Real GDP	1.1	2.2	2.3	1.4	0.6	2.9	2.8	0.9	2.2	1.2	2.8	3.4	1.9
GDP deflator	17.0	13.1	12.2	8.5	25.7	17.4	19.6	15.0	18.0	13.7	18.0	17.8	15.5
Real exports	-5.3	-1.5	3.5	-1.0	0.0	2.9	5.0	8.1	4.5	1.3	1.1	2.6	0.8
Middle East													
Real GDP	4.5	1.2	1.7	-3.6	-0.1	-0.2	2.5	5.8	2.9	4.9	4.8	4.2	1.7
GDP deflator	-4.5	1.2	3.1	5.7	14.8	9.5	13.5	20.4	2.7	9.6	12.8	11.6	6.3
Real exports	-19.6	-6.7	-7.1	-3.8	24.6	4.8	21.0	6.0	19.1	13.3	4.7	13.4	4.1

1/ Excludes Yugoslavia, Argentina, Brazil, &amp; Peru starting in 1989. E = estimate. F = forecast.

Information contact: Alberto Jerardo, (202) 219-0705.

## Farm Prices

Table 4.—Indexes of Prices Received &amp; Paid by Farmers, U.S. Average

	Annual			1992			1993			
	1990	1991	1992 P	Apr	Nov	Dec	Jan	Feb	Mar R	Apr P
	1977 = 100									
Prices received										
All farm products	149	145	139	141	136	137	139	140	142	145
All crops	127	129	121	128	115	118	117	118	116	123
Food grains	127	129	121	148	133	134	136	134	132	130
Feed grains & hay	123	118	115	123	104	104	107	106	110	113
Feed grains	118	115	114	123	100	99	102	101	105	107
Cotton	107	108	87	88	84	90	87	88	92	90
Tobacco	152	181	155	145	164	163	161	167	167	150
Oil-bearing crops	94	91	85	88	85	86	89	89	90	90
Fruit, all	180	262	183	206	170	162	146	136	118	133
Fresh market 1/	196	285	186	215	169	161	142	130	109	127
Commercial vegetables	142	135	161	150	141	168	185	177	154	204
Fresh market	144	140	167	152	144	176	174	195	183	229
Potatoes & dry beans	189	141	126	128	127	129	133	133	156	175
Livestock & products	170	161	167	155	158	156	159	162	166	166
Meat animals	193	188	178	178	172	174	181	187	192	191
Dairy products	141	126	135	134	136	132	129	127	126	128
Poultry & eggs	131	124	117	111	127	124	122	121	130	131
Prices paid										
Commodities & services, interest, taxes, & wage rates	184	189	191	191	192	192	194	194	194	197
Production items	171	174	174	174	175	175	176	176	176	179
Feed	128	123	123	128	—	—	122	—	—	124
Feeder livestock	213	214	202	199	—	—	216	—	—	221
Seed	165	163	162	162	—	—	162	—	—	169
Fertilizer	131	134	131	132	—	—	128	—	—	129
Agricultural chemicals	139	151	159	181	—	—	161	—	—	166
Fuels & energy	204	203	199	194	—	—	198	—	—	199
Farm & motor supplies	154	154	160	160	—	—	161	—	—	159
Autos & trucks	231	244	258	281	—	—	265	—	—	272
Tractors & self-propelled machinery	202	211	219	217	—	—	224	—	—	223
Other machinery	216	226	233	234	—	—	235	—	—	245
Building & fencing	143	146	150	151	—	—	152	—	—	162
Farm services & cash rent	166	170	172	172	—	—	172	—	—	172
Int. payable per acre on farm real estate debt	177	172	167	167	—	—	164	—	—	164
Taxes payable per acre on farm real estate	158	160	171	171	—	—	178	—	—	178
Wage rates (seasonally adjusted)	193	201	210	212	—	—	217	—	—	217
Production items, interest, taxes, & wage rates	172	175	178	178	—	—	178	—	—	181
Ratio, prices received to prices paid (%) 2/	81	77	73	74	71	71	72	73	73	74
Prices received (1910-14=100)	681	685	636	645	623	628	634	640	647	661
Prices paid, etc. (parity index) (1910-14=100)	1,267	1,298	1,317	1,317	—	—	1,337	—	—	1,355
Parity ratio (1910-14=100) (%) 2/	54	51	48	49	47	47	47	—	—	49

1/ Fresh market for noncitrus, fresh market &amp; processing for citrus. 2/ Ratio of index of prices received for all farm products to index of prices paid for commodities &amp; services, interest, taxes, &amp; wage rates. Ratio uses the most recent prices paid index. Prices paid data are quarterly &amp; will be published in January, April, July, &amp; October. R = revised. P = preliminary. — = not available.

Information contact: Ann Duncan (202) 219-0313.



Table 5.—Prices Received by Farmers, U.S. Average

	Annual 1/			1992			1993			
	1990	1991	1992 P	Apr	Nov	Dec	Jan	Feb	Mar R	Apr P
<b>CROPS</b>										
All wheat (\$/bu.)	2.61	3.00	3.30	3.65	3.29	3.31	3.37	3.33	3.30	3.28
Rice, rough (\$/cwt)	6.70	7.58	8.10	7.46	6.38	6.39	6.36	6.06	5.84	5.48
Corn (\$/bu.)	2.28	2.37	2.05	2.48	1.98	1.98	2.03	2.00	2.10	2.17
Sorghum (\$/cwt)	3.79	4.02	3.39	4.28	3.22	3.27	3.38	3.32	3.38	3.45
All hay, baled (\$/ton)	80.80	71.00	74.00	70.90	74.10	73.80	75.10	77.70	78.90	83.80
Soybeans (\$/bu.)	5.74	5.80	5.40	5.66	5.36	5.46	5.58	5.56	5.85	6.70
Cotton, upland (cts./lb.)	68.2	58.3	—	53.1	51.0	54.2	52.7	52.9	55.5	54.30
Potatoes (\$/cwt)	6.08	4.96	5.28	5.20	4.88	5.01	5.24	5.25	6.41	7.40
Lettuce (\$/cwt) 2/	11.50	11.40	12.40	9.81	9.50	16.90	10.90	19.00	14.70	29.40
Tomatoes fresh (\$/cwt) 2/	27.40	31.80	38.20	32.40	39.70	39.50	38.30	21.80	21.20	30.50
Onions (\$/cwt)	10.50	12.50	12.80	23.50	12.60	15.20	17.00	14.10	17.00	28.10
Dry edible beans (\$/cwt)	18.50	15.60	21.00	15.80	21.30	21.50	21.10	20.80	20.10	19.60
Apples for fresh use (cts./lb.)	20.9	25.0	—	24.0	19.9	20.0	19.2	17.8	15.2	14.7
Pears for fresh use (\$/ton)	360.00	385.00	399.00	394.00	449.00	380.00	362.00	393.00	399.00	429.00
Oranges, all uses (\$/box) 3/	6.16	6.78	5.83	6.42	3.80	2.90	2.66	2.39	2.11	3.23
Grapefruit, all uses (\$/box) 3/	5.86	5.48	6.16	6.78	4.11	4.66	3.00	2.42	1.48	2.13
<b>LIVESTOCK</b>										
Beef cattle (\$/cwt)	74.80	72.90	71.50	72.60	70.20	70.80	74.20	75.80	77.30	77.10
Calves (\$/cwt)	96.50	99.90	89.80	91.90	86.50	87.00	93.20	95.90	98.20	99.20
Hogs (\$/cwt)	54.00	48.80	41.80	41.00	40.90	41.80	41.40	44.20	46.80	45.40
Lambs (\$/cwt)	56.00	52.50	60.70	69.30	58.20	65.20	67.00	72.70	76.30	67.10
All milk, sold to plants (\$/cwt)	13.70	12.20	13.10	12.60	13.10	12.80	12.50	12.30	12.20	12.40
Milk, manuf. grade (\$/cwt)	12.34	11.05	11.88	11.50	12.00	11.50	11.10	10.90	11.10	11.70
Broilers (cts./lb.)	32.4	31.0	31.7	29.7	33.2	31.3	31.5	31.8	32.4	33.2
Eggs (cts./doz.) 4/	70.4	66.2	56.4	54.6	64.8	64.4	63.7	61.5	70.7	69.3
Turkeys (cts./lb.)	38.4	37.7	37.4	37.0	39.0	39.2	35.9	34.8	37.2	37.7
Wool (cts./lb.) 5/	80.0	55.0	55.0	81.0	61.7	48.8	43.3	43.7	45.5	45.5

1/ Season average price by crop year for crops. Calendar year average of monthly prices for livestock. 2/ Excludes Hawaii. 3/ Equivalent on-tree returns.  
 4/ Average of all eggs sold by producers including hatching eggs & eggs sold at retail. 5/ Average local market price, excluding incentive payments.  
 P = preliminary. R = revised. — = not available.

Information contact: Ann Duncan (202) 219-0313.

## Producer & Consumer Prices

Table 6.—Consumer Price Index for All Urban Consumers, U.S. Average (Not Seasonally Adjusted)

	Annual	1992					1993			
	1992	Apr	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
		1982-84=100								
Consumer Price Index, all items	140.3	139.5	141.3	141.8	142.0	141.9	142.6	143.1	143.6	144.0
Consumer Price Index, less food	140.8	139.7	141.8	142.4	142.7	142.5	143.1	143.7	144.2	144.6
<b>All food</b>	<b>137.9</b>	<b>138.1</b>	<b>138.5</b>	<b>138.3</b>	<b>138.3</b>	<b>138.7</b>	<b>139.8</b>	<b>139.9</b>	<b>140.1</b>	<b>140.8</b>
Food away from home	140.7	140.2	141.2	141.3	141.5	141.6	142.0	142.2	142.4	142.7
Food at home	136.8	137.4	137.4	137.2	137.0	137.5	139.1	139.1	139.4	140.0
Meats 1/	130.7	130.2	130.9	131.1	131.2	131.1	132.3	132.1	133.1	133.8
Beef & veal	132.3	133.2	131.8	132.5	132.9	132.8	135.1	135.6	136.3	137.8
Pork	127.8	125.1	129.4	128.7	127.9	127.4	127.9	127.2	129.0	128.5
Poultry	131.4	129.2	134.0	133.3	133.6	133.7	134.6	133.1	135.7	135.2
Fish	151.7	153.5	151.2	151.4	151.2	152.0	157.2	157.5	157.8	159.7
Eggs	108.3	105.1	111.6	109.3	113.4	117.7	116.2	115.6	120.3	126.9
Dairy products 2/	128.5	127.4	129.7	130.1	129.4	129.1	129.5	128.8	128.8	128.0
Fats & oils 3/	129.8	129.6	129.9	129.9	128.5	128.4	130.2	130.7	130.2	130.2
Fresh fruit	184.2	187.4	189.2	182.1	181.4	181.8	191.0	187.0	184.4	184.8
Processed fruit	137.7	140.0	138.0	136.4	135.5	134.8	133.3	134.5	132.0	132.1
Fresh vegetables	157.9	175.4	152.8	155.2	158.4	166.1	172.4	171.1	173.7	179.3
Potatoes	141.5	135.6	153.1	143.0	136.0	137.2	139.7	138.9	142.4	152.0
Processed vegetables	128.8	128.6	129.1	129.1	127.7	127.3	129.8	128.9	130.2	130.4
Cereals & bakery products	151.5	150.6	152.6	152.8	152.7	153.3	153.4	154.9	154.6	155.4
Sugar & sweets	133.1	133.0	133.7	133.7	133.0	132.1	133.1	133.3	132.8	133.2
<b>Beverages, nonalcoholic</b>	<b>114.3</b>	<b>114.4</b>	<b>114.2</b>	<b>114.1</b>	<b>112.4</b>	<b>112.3</b>	<b>113.5</b>	<b>115.1</b>	<b>114.8</b>	<b>114.2</b>
<b>Apparel</b>										
Apparel, commodities less footwear	130.2	132.0	131.7	133.7	133.1	129.4	127.3	131.9	135.2	135.9
Footwear	125.0	125.6	126.3	127.1	128.0	125.1	124.4	125.2	126.3	127.1
Tobacco & smoking products	219.8	214.9	224.0	225.6	225.0	228.9	234.8	235.6	236.3	237.3
Beverages, alcoholic	147.3	147.2	148.0	148.2	148.2	148.1	148.7	149.1	149.4	149.7

1/ Beef, veal, lamb, pork, & processed meat. 2/ Includes butter. 3/ Excludes butter.

Information contact: Ann Duncan (202) 219-0313.

Table 7.—Producer Price Indexes, U.S. Average (Not Seasonally Adjusted)

	Annual			1992				1993		
	1990	1991	1992	Mar	Oct	Nov R	Dec	Jan	Feb	Mar
	1982 = 100									
All commodities	116.3	116.5	117.2	116.1	118.1	117.8	117.6	118.0	118.2	119.7
Finished goods 1/	119.2	121.7	123.2	122.1	124.3	124.0	123.8	124.0	124.3	124.6
All foods 2/	123.2	122.2	120.8	121.0	121.0	121.1	121.7	121.3	121.5	122.4
Consumer foods	124.4	124.1	123.2	123.3	123.6	123.4	124.1	123.8	124.0	124.6
Fresh fruit & melons	118.1	129.9	83.8	86.8	79.3	91.3	84.1	79.3	77.7	73.5
Fresh & dried vegetables	118.1	103.8	115.0	132.4	141.1	114.3	134.1	132.1	136.9	132.3
Dried fruit	106.7	111.8	114.4	114.9	114.7	114.8	114.9	116.2	115.7	115.7
Canned fruit & juice	127.0	128.6	134.5	138.6	132.1	130.9	129.9	128.1	128.3	125.8
Frozen fruit & juice	139.0	116.3	125.8	134.8	118.2	116.9	113.8	108.8	106.1	105.3
Fresh veg. excl. potatoes	107.8	100.2	116.4	147.9	149.0	108.2	133.4	128.7	125.8	117.2
Canned veg. & juices	116.7	112.9	109.6	109.3	109.1	109.5	110.5	109.9	110.2	109.3
Frozen vegetables	118.4	117.6	118.4	118.2	116.3	117.5	118.2	118.2	118.2	118.1
Potatoes	157.3	125.7	118.3	95.8	107.3	112.9	108.4	120.2	119.1	131.3
Eggs for fresh use	3/	3/	78.8	76.8	78.1	91.9	89.9	87.1	87.9	99.0
Bakery products	141.0	146.6	152.5	150.6	154.1	154.2	154.7	155.5	155.7	155.4
Meats	117.0	113.5	106.7	106.7	106.7	105.2	108.4	107.9	108.5	110.6
Beef & veal	116.0	112.2	109.7	111.0	109.0	107.7	114.8	113.4	114.0	115.8
Pork	119.8	113.4	98.5	96.2	99.9	97.2	97.0	97.0	97.7	101.0
Processed poultry	113.8	109.9	109.1	106.8	111.8	111.4	109.2	108.3	108.5	109.4
Fish	147.2	149.5	153.0	161.7	140.2	150.7	147.5	146.7	149.8	168.6
Dairy products	117.2	114.6	118.0	115.0	119.4	118.7	117.3	116.2	115.2	114.9
Processed fruits & vegetables	124.7	119.6	120.8	122.3	119.1	118.9	118.8	117.5	117.4	116.4
Shortening & cooking oil	123.2	118.5	114.9	115.9	113.3	116.2	118.5	118.5	116.5	117.9
Soft drinks	122.3	125.5	125.7	124.7	125.1	125.5	126.1	126.7	127.5	127.5
Consumer finished goods less foods	115.3	118.7	120.8	119.0	122.3	121.7	121.1	121.4	121.8	122.1
Beverages, alcoholic	117.2	123.7	126.1	126.3	125.5	125.6	125.4	125.8	125.6	126.3
Apparel	117.5	119.6	122.2	122.0	122.9	123.0	123.0	123.2	123.3	123.3
Footwear	125.6	128.6	131.9	131.4	132.4	132.4	133.2	133.2	133.8	134.1
Tobacco products	221.4	249.7	275.3	268.2	274.2	276.5	285.1	291.9	292.2	292.2
Intermediate materials 4/	114.5	114.4	114.7	113.8	115.4	115.0	114.9	115.3	115.5	115.9
Materials for food manufacturing	117.9	115.3	113.9	113.4	112.9	112.8	113.3	113.2	112.6	113.2
Flour	103.6	96.8	109.3	113.6	106.5	106.6	105.4	109.7	110.0	109.2
Refined sugar 5/	122.7	121.6	120.0	120.2	119.2	119.2	119.8	118.2	118.5	118.3
Crude vegetable oils	115.6	103.0	97.1	101.2	91.2	95.7	101.9	104.0	101.2	102.8
Crude materials 6/	108.9	101.2	100.3	97.9	101.8	101.8	100.5	101.4	101.1	102.6
Foodstuffs & feedstuffs	113.1	105.5	105.1	107.2	103.5	102.8	104.4	105.2	105.6	108.2
Fruits & vegetables & nuts 7/	117.5	114.7	96.8	104.6	105.2	102.0	106.0	103.4	104.8	101.3
Grains	97.4	92.0	97.3	108.5	87.8	86.6	89.2	89.9	88.1	89.3
Livestock	115.6	107.9	104.7	107.0	104.2	101.8	106.3	108.3	110.0	112.6
Poultry, live	118.8	111.2	112.6	105.4	119.3	121.7	108.9	112.0	110.4	116.1
Fibers, plant & animal	117.8	115.1	89.8	84.7	82.8	83.2	87.3	89.5	89.5	94.2
Fluid milk	100.8	89.5	96.3	91.3	98.1	95.4	93.9	91.0	89.1	88.7
Oilseeds	112.1	106.4	107.5	110.4	101.2	104.0	107.1	106.9	106.7	108.3
Tobacco, leaf	95.8	101.1	101.0	113.9	105.5	106.1	106.1	104.8	110.0	108.7
Sugar, raw cane	119.2	113.7	112.1	112.6	113.6	112.8	111.0	109.3	109.5	112.1

1/ Commodities ready for sale to ultimate consumer. 2/ Includes all raw, intermediate, & processed foods (excludes soft drinks, alcoholic beverages, & manufactured animal feeds). 3/ New index beginning Dec. 1991. 4/ Commodities requiring further processing to become finished goods. 5/ All types & sizes of refined sugar. 6/ Products entering market for the first time that have not been manufactured at that point. 7/ Fresh & dried. R = revised.

Information contact: Ann Duncan (202) 219-0313.



## Farm-Retail Price Spreads

Table 8.—Farm-Retail Price Spreads

	Annual			1992				1993		
	1990	1991	1992	Mar	Oct	Nov	Dec	Jan	Feb	Mar
<b>Market basket 1/</b>										
Retail cost (1982-84=100)	133.5	137.4	138.4	138.9	138.9	138.9	139.5	141.0	140.8	141.0
Farm value (1982-84=100)	113.1	106.1	103.4	105.0	104.5	103.5	103.6	104.2	104.0	105.7
Farm-retail spread (1982-84=100)	144.5	154.2	157.3	157.1	157.5	158.0	158.9	160.8	160.4	160.0
Farm value-retail cost (%)	29.7	27.0	26.2	26.5	26.3	26.1	26.0	25.9	25.9	26.3
<b>Meat products</b>										
Retail cost (1982-84=100)	128.5	132.6	130.7	131.1	131.1	131.2	131.1	132.3	132.1	133.1
Farm value (1982-84=100)	118.8	110.0	104.5	104.7	104.2	103.5	105.5	107.1	109.5	113.7
Farm-retail spread (1982-84=100)	140.4	155.8	157.5	158.1	158.7	159.6	157.4	158.2	155.3	153.0
Farm value-retail cost (%)	46.0	42.0	40.5	40.5	40.3	40.0	40.8	41.0	42.0	43.3
<b>Dairy products</b>										
Retail cost (1982-84=100)	126.5	125.1	128.5	127.8	130.1	129.4	129.1	129.5	128.8	128.8
Farm value (1982-84=100)	101.7	90.0	95.9	93.0	97.4	95.0	94.5	92.6	90.3	88.4
Farm-retail spread (1982-84=100)	149.5	157.5	158.8	159.9	160.2	161.1	161.0	163.5	164.3	166.1
Farm value-retail cost (%)	38.5	34.5	35.8	34.9	35.9	35.2	35.1	34.3	33.6	32.9
<b>Poultry</b>										
Retail cost (1982-84=100)	132.5	131.5	131.4	128.2	133.3	133.6	133.7	134.6	133.1	135.7
Farm value (1982-84=100)	107.6	102.5	104.0	98.4	107.9	108.8	103.8	102.7	103.0	105.8
Farm-retail spread (1982-84=100)	161.1	164.9	163.0	162.5	162.6	162.1	168.1	171.3	167.7	170.1
Farm value-retail cost (%)	43.5	41.7	42.4	41.1	43.3	43.8	41.6	40.9	41.4	41.7
<b>Eggs</b>										
Retail cost (1982-84=100)	124.1	121.2	108.3	106.0	109.3	113.4	117.7	116.2	115.6	120.3
Farm value (1982-84=100)	108.0	100.9	77.8	72.9	78.2	94.7	95.4	92.6	88.3	105.9
Farm-retail spread (1982-84=100)	153.2	157.8	163.2	165.5	165.2	147.0	157.8	158.6	164.6	146.2
Farm value-retail cost (%)	55.9	53.6	46.1	44.2	46.0	53.7	52.1	51.2	49.1	56.5
<b>Cereal &amp; bakery products</b>										
Retail cost (1982-84=100)	140.0	145.8	151.5	149.7	152.8	152.7	153.3	153.4	154.9	154.6
Farm value (1982-84=100)	90.5	85.3	94.7	99.8	69.7	90.8	91.2	91.8	91.3	90.7
Farm-retail spread (1982-84=100)	146.9	154.3	159.4	156.7	181.6	161.3	162.0	162.0	163.8	163.5
Farm value-retail cost (%)	7.9	7.2	7.7	8.2	7.2	7.3	7.3	7.3	7.2	7.2
<b>Fresh fruits</b>										
Retail cost (1982-84=100)	174.6	200.1	189.8	191.5	188.0	188.3	189.6	199.0	191.6	188.5
Farm value (1982-84=100)	128.3	174.4	122.5	132.6	114.7	122.1	127.1	132.6	132.2	132.2
Farm-retail spread (1982-84=100)	195.9	211.9	220.8	218.7	221.8	218.9	218.4	229.6	219.0	214.5
Farm value-retail cost (%)	23.2	27.5	20.4	21.9	19.3	20.5	21.2	21.0	21.8	22.2
<b>Fresh vegetables</b>										
Retail cost (1982-84=100)	151.1	154.4	157.9	151.1	155.2	158.4	166.1	172.4	171.1	173.7
Farm value (1982-84=100)	124.4	110.8	121.6	124.0	141.0	115.0	124.0	132.6	129.4	123.9
Farm-retail spread (1982-84=100)	164.9	176.8	176.6	165.0	162.5	180.7	187.7	192.9	192.5	199.3
Farm value-retail cost (%)	28.0	24.4	26.1	27.9	30.8	24.7	25.4	26.1	25.7	24.2
<b>Processed fruits &amp; vegetables</b>										
Retail cost (1982-84=100)	132.7	130.2	133.7	134.2	133.1	132.0	131.4	131.6	131.9	131.1
Farm value (1982-84=100)	144.0	120.6	129.0	132.5	128.3	125.9	111.2	110.0	106.9	105.6
Farm-retail spread (1982-84=100)	129.1	133.2	135.2	134.7	134.6	133.9	137.7	138.3	139.7	139.1
Farm value-retail cost (%)	25.8	22.0	22.9	23.5	22.9	22.7	20.1	19.9	19.3	19.2
<b>Fats &amp; oils</b>										
Retail cost (1982-84=100)	126.3	131.7	129.8	129.8	129.9	128.5	128.4	130.2	130.7	130.2
Farm value (1982-84=100)	107.1	98.0	93.2	96.7	90.0	98.4	98.2	102.0	99.7	98.4
Farm-retail spread (1982-84=100)	133.4	144.2	143.3	142.0	144.6	139.6	139.5	140.6	142.1	141.9
Farm value-retail cost (%)	22.8	20.0	19.3	20.0	18.6	20.6	20.6	21.1	20.5	20.3

	Annual			1992			1993			
	1990	1991	1992	Apr	Nov	Dec	Jan	Feb	Mar	Apr
<b>Beef, Choice</b>										
Retail price 2/ (cts./lb.)	281.0	288.3	284.6	287.6	287.1	287.3	288.4	292.6	295.5	299.1
Wholesale value 3/ (cts.)	189.8	182.5	179.8	182.6	177.1	184.2	188.5	187.8	191.7	193.5
Net farm value 4/ (cts.)	168.4	160.2	161.8	168.3	159.5	165.1	170.2	172.7	178.7	177.2
Farm-retail spread (cts.)	112.6	128.1	122.8	119.3	127.6	122.2	118.2	119.8	116.8	121.9
Wholesale-retail 5/ (cts.)	91.4	105.8	105.0	105.0	110.0	103.1	99.9	104.7	103.8	105.6
Farm-wholesale 6/ (cts.)	21.2	22.3	17.8	14.3	17.6	19.1	18.3	15.1	13.0	16.3
Farm value-retail price (%)	60	56	57	59	58	57	59	59	60	59
<b>Pork</b>										
Retail price 2/ (cts./lb.)	212.6	211.9	198.0	194.2	196.4	196.3	196.0	193.9	193.9	191.4
Wholesale value 3/ (cts.)	118.3	108.9	98.9	95.2	96.9	98.8	95.0	99.0	102.6	102.3
Net farm value 4/ (cts.)	87.2	78.4	87.8	66.4	66.0	66.6	66.0	70.8	74.6	71.9
Farm-retail spread (cts.)	125.4	133.5	130.2	127.8	130.4	129.7	130.0	123.1	119.3	119.5
Wholesale-retail 5/ (cts.)	94.3	103.0	99.1	99.0	99.5	97.5	101.0	94.9	91.3	89.1
Farm-wholesale 6/ (cts.)	31.1	30.5	31.1	28.8	30.9	32.2	29.0	28.2	28.0	30.4
Farm value-retail price (%)	41	37	34	34	34	34	34	37	38	38

1/ Retail costs are based on CPI-U of retail prices for domestically produced farm foods, published monthly by BLS. The farm value is the payment for the quantity of farm equivalent to the retail unit, less allowance for byproduct. Farm values are based on prices at first point of sale & may include marketing charges such as grading & packing for some commodities. The farm-retail spread, the difference between the retail price & the farm value, represents charges for assembling, processing, transporting, distributing. 2/ Weighted average price of retail cuts from pork & choice yield grade 3 beef. Prices from BLS. 3/ Value of wholesale (boxed beef) & wholesale cuts (pork) equivalent to 1 lb. of retail cuts adjusted for transportation costs & byproduct values. 4/ Market value to producer for live animal equivalent to 1 lb. of retail cuts, minus value of byproducts. 5/ Charges for retailing & other marketing services such as wholesaling, & in-city transportation. 6/ Charges for livestock marketing, processing, & transportation.

Information contacts: Denis Dunham (202) 219-0870, Larry Duweier (202) 219-0712.

Table 9.—Price Indexes of Food Marketing Costs

	Annual			1991	1992				1993
	1990	1991	1992	IV	I	II	III	IV	I P
1987=100 *									
Labor—hourly earnings & benefits	393.2	409.7	419.3	414.3	417.7	418.1	419.2	422.1	424.8
Processing	404.4	420.4	435.1	425.2	430.5	436.5	435.1	438.4	440.2
Wholesaling	422.0	443.8	458.7	446.6	454.3	456.6	460.0	463.7	468.9
Retailing	369.5	383.9	386.9	389.1	392.2	382.7	385.3	387.5	389.8
Packaging & containers	367.6	371.2	370.1	368.0	369.6	369.7	369.7	371.4	370.8
Paperboard boxes & containers	323.9	320.3	324.8	322.5	324.4	324.8	325.1	324.9	324.2
Metal cans	455.0	470.5	478.1	473.0	477.4	479.6	477.7	477.7	478.0
Paper bags & related products	413.0	410.9	387.8	389.6	387.2	386.4	384.5	393.0	392.5
Plastic films & bottles	307.1	310.7	309.9	306.3	308.6	307.4	310.2	313.2	311.2
Glass containers	427.3	446.0	444.4	446.3	446.1	444.3	444.0	443.1	442.8
Metal foil	258.4	251.6	241.0	240.8	241.4	240.0	241.5	240.9	239.4
Transportation services	411.3	422.6	426.1	423.7	425.4	427.9	428.9	424.0	425.4
Advertising	433.0	460.1	484.0	466.7	477.6	482.0	486.0	490.2	500.2
Fuel & power	671.4	655.7	654.6	649.6	620.4	645.6	678.3	673.9	661.2
Electric	477.7	508.3	514.0	506.9	497.1	511.1	536.2	511.8	506.1
Petroleum	744.8	649.8	639.9	634.4	564.2	628.7	685.6	681.1	645.7
Natural gas	1,071.0	1,065.0	1,061.1	1,062.6	1,049.6	1,039.4	1,053.5	1,061.1	1,108.4
Communications, water & sewage	253.1	261.7	266.9	264.5	265.3	266.2	267.5	268.4	269.0
Rent	273.0	282.7	278.3	280.7	279.9	279.4	277.0	276.7	276.7
Maintenance & repair	426.7	442.7	454.8	448.5	451.8	453.5	455.2	458.6	462.6
Business services	405.6	425.4	440.9	432.2	436.6	440.9	442.5	443.7	448.5
Supplies	321.1	319.3	318.1	317.5	314.5	317.0	320.9	320.1	318.6
Property taxes & insurance	462.2	480.5	496.7	488.0	491.3	494.2	497.8	503.2	507.5
Interest, short-term	155.5	114.5	74.5	96.2	82.0	78.9	66.7	70.3	67.3
Total marketing cost index	397.6	409.3	415.7	411.4	411.7	414.9	417.2	418.8	420.4

\* Indexes measure changes in employee earnings & benefits & in prices of supplies & services used in processing, wholesaling, & retailing U.S. farm foods purchased for at-home consumption. P = preliminary.

Information contact: Denis Dunham (202) 219-0870.



## Livestock &amp; Products

Table 10.—U.S. Meat Supply &amp; Use

	Beg. stocks	Produc- tion 1/	Imports	Total supply	Exports	Ending stocks	Consumption		Primary market price 3/
							Total	Per capita 2/	
							Pounds		
Million pounds 4/									
Beef									
1990	335	22,743	2,356	25,434	1,006	397	24,031	67.8	78.55
1991	397	22,917	2,406	25,720	1,188	419	24,113	66.8	74.28
1992	419	23,086	2,440	25,945	1,324	360	24,261	66.5	75.36
1993 F	360	23,176	2,335	25,871	1,380	350	24,221	65.7	75-79
Pork									
1990	313	15,354	898	16,565	238	296	16,031	49.8	55.32
1991	296	15,999	775	17,070	283	388	16,399	50.4	49.69
1992	388	17,234	645	18,267	407	385	17,475	53.1	43.03
1993 F	385	17,406	670	18,461	410	375	17,676	53.1	43-47
Veal 5/									
1990	4	327	0	331	0	6	325	1.1	96.51
1991	8	306	0	312	0	7	305	1.0	99.94
1992	7	310	0	317	0	6	312	1.0	89.38
1993 F	5	292	0	297	0	4	293	0.9	89-93
Lamb & mutton									
1990	8	363	59	430	3	8	419	1.5	55.54
1991	8	363	60	431	3	6	422	1.5	53.21
1992	6	348	68	420	3	8	409	1.4	61.00
1993 F	8	337	65	410	3	9	398	1.4	63-67
Total red meat									
1990	660	38,787	3,313	42,760	1,247	707	40,806	120.1	—
1991	707	39,585	3,241	43,533	1,474	820	41,239	119.6	—
1992	820	40,978	3,151	44,949	1,734	758	42,457	122.0	—
1993 F	758	41,211	3,070	45,039	1,713	738	42,588	121.1	—
Broilers									
1990	38	18,430	0	18,468	1,143	28	17,299	61.0	54.8
1991	28	19,591	0	19,617	1,261	36	18,320	63.7	62.0
1992	36	20,907	0	20,943	1,489	33	19,421	66.8	52.6
1993 F	33	21,722	0	21,755	1,590	33	20,132	68.6	52-56
Mature chicken									
1990	189	523	0	713	25	224	464	1.9	—
1991	224	508	0	732	28	274	429	1.7	—
1992	274	519	0	793	41	345	407	1.6	—
1993 F	345	509	0	854	40	330	484	1.9	—
Turkeys									
1990	236	4,514	0	4,750	54	306	4,390	17.8	63.2
1991	308	4,503	0	4,909	103	264	4,541	18.0	61.3
1992	264	4,778	0	5,042	171	272	4,599	18.0	59.9
1993 F	272	4,829	0	5,101	182	260	4,659	16.1	59-63
Total poultry									
1990	463	23,468	0	23,931	1,222	557	22,152	60.5	—
1991	557	24,701	0	25,258	1,392	575	23,291	63.4	—
1992	575	26,203	0	26,778	1,701	650	24,428	66.4	—
1993 F	650	27,060	0	27,710	1,812	623	25,275	68.5	—
Red meat & poultry									
1990	1,123	62,255	3,313	66,691	2,469	1,264	62,958	200.6	—
1991	1,264	64,286	3,241	68,791	2,867	1,395	64,530	203.0	—
1992	1,395	67,181	3,151	71,727	3,435	1,408	66,884	208.5	—
1993 F	1,408	68,271	3,070	72,749	3,525	1,361	67,863	209.6	—

1/ Total including farm production for red meats & federally inspected plus nonfederally inspected for poultry. 2/ Retail weight basis. (The beef carcass-to-retail conversion factor was 70.5). 3/ Dollars per cwt for red meat, cents per pound for poultry. Beef: Medium # 1, Nebraska Direct 1,100-1,300 lb.; pork: barrows & gilts, Iowa, Southern Minnesota; veal: farm price of calves, lamb & mutton: Choice slaughter lambs, San Angelo; broilers: wholesale 12-city average; turkeys: wholesale NY 6-16 lb. young hens. 4/ Carcass weight for red meats & certified ready-to-cook for poultry. 5/ Beginning 1989 veal trade no longer reported separately. F = forecast. — = not available.

Information contacts: Polly Cochran or Maxine Davis (202) 219-0767.

Table 11.—U.S. Egg Supply &amp; Use

	Beg. stocks	Pro- duc- tion	Im- ports	Total supply	Ex- ports	Hatch- ing use	Ending stocks	Consumption		Wholesale price*
								Total	Per capita	
	Million dozen							No.	Cts./doz.	
1987	10.4	5,868.2	5.6	5,884.2	111.2	599.1	14.4	5,159.5	254.9	61.6
1988	14.4	5,784.2	5.3	5,803.9	141.8	605.9	15.2	5,041.0	246.9	62.1
1989	15.2	5,598.2	25.2	5,638.5	91.5	643.9	10.7	4,892.4	237.3	61.9
1990	10.7	5,685.6	9.1	5,685.3	100.5	678.5	11.6	4,894.7	235.0	62.2
1991	11.6	5,779.3	2.3	5,793.3	154.3	708.1	13.0	4,917.9	233.5	77.5
1992	13.0	5,882.7	4.3	5,899.9	157.0	728.6	13.5	5,002.8	235.0	65.4
1993 F	13.5	5,918.5	4.0	5,936.0	160.0	752.3	12.0	5,011.7	233.0	70-78

\* Cartoned grade A large eggs, New York. F = forecast

Information contact: Maxine Davis (202) 219-0767.

Table 12.—U.S. Milk Supply & Use<sup>1/</sup>

Production	Farm use	Commercial		Imports	Total commercial supply	CCC net removals	Commercial		All milk price 1/	CCC net removals		
		Farm marketings	Beg. stock				Ending stocks	Disappearance		Skim solids basis	Total solids basis 2/	
Billion pounds (milkfat basis)									\$/cwt	Billion pounds		
1985	143.0	2.5	140.6	4.8	2.8	148.2	13.3	4.5	130.4	12.76	17.2	16.8
1986	143.1	2.4	140.7	4.5	2.7	147.9	10.8	4.1	133.0	12.61	14.3	12.9
1987	142.7	2.3	140.5	4.1	2.5	147.1	8.8	4.6	135.7	12.54	9.3	8.3
1988	145.2	2.2	142.9	4.6	2.4	149.0	9.1	4.3	136.5	12.26	5.5	6.9
1989	144.2	2.1	142.2	4.3	2.6	149.0	9.4	4.1	135.4	13.56	0.4	4.0
1990	146.3	2.0	146.3	4.1	2.7	153.1	9.0	5.1	138.9	13.88	1.6	4.6
1991	148.5	2.0	146.5	5.1	2.8	154.3	10.4	4.5	139.4	12.24	3.9	6.5
1992	151.7	2.0	149.7	4.6	2.5	156.7	10.0	4.7	142.0	13.10	2.4	5.4
1993 F	151.3	2.0	149.3	4.7	2.6	156.5	7.4	4.5	144.7	12.90	3.0	4.8

1/ Delivered to plants & dealers; does not reflect deductions. 2/ Arbitrarily weighted average of milkfat basis (40 percent) & skim solids basis (60 percent). F = forecast.

Information contact: Jim Miller (202) 219-0770.

Table 13.—Poultry &amp; Eggs

	Annual			1992				1993		
	1990	1991	1992	Mar	Oct	Nov	Dec	Jan	Feb	Mar
<b>Broilers</b>										
Federally inspected slaughter, certified (mil. lb.)	18,555.0	19,727.7	21,052.4	1,760.8	1,834.0	1,595.0	1,817.8	1,802.8	1,659.6	1,890.9
Wholesale price, 12-city (cts./lb.)	54.8	62.0	52.6	50.2	53.7	65.0	51.2	62.1	53.0	54.0
Price of grower feed (\$/ton)	218	208	208	205	206	201	202	206	205	209
Broiler-feed price ratio 1/	3.0	3.0	3.1	2.9	3.2	3.3	3.1	3.1	3.1	3.1
Stocks beginning of period (mil. lb.)	38.3	26.1	36.1	36.4	31.1	28.8	29.0	32.8	31.6	32.7
Broiler-type chicks hatched (mil.) 2/	8,324.4	6,616.5	6,830.9	587.1	547.0	526.4	588.3	587.6	536.4	611.9
<b>Turkeys</b>										
Federally inspected slaughter, certified (mil. lb.)	4,560.7	4,651.0	4,828.9	361.3	467.6	423.0	393.1	353.7	322.0	380.2
Wholesale price, Eastern U.S., 8-16 lb. young hens (cts./lb.)	63.2	61.2	60.2	59.8	63.9	65.6	65.1	68.1	56.8	58.4
Price of turkey grower feed (\$/ton)	238	230	242	239	241	244	245	243	240	240
Turkey-feed price ratio 1/	3.2	3.3	3.1	3.1	3.2	3.2	3.2	3.0	2.9	3.1
Stocks beginning of period (mil. lb.)	235.9	306.4	294.1	354	734.4	714.7	320.6	271.7	314.7	359.8
Poults placed in U.S. (mil.)	304.9	308.1	307.8	27.5	21.9	22.1	24.0	24.7	25.3	27.3
<b>Eggs</b>										
Farm production (mil.)	67,987	69,352	70,592	6,049	6,010	6,904	6,099	6,020	5,421	6,061
Average number of layers (mil.)	270	275	278	279	279	281	281	282	282	282
Rate of lay (eggs per layer on farm)	251.7	252.4	253.9	21.7	21.5	21.0	21.7	21.3	19.2	21.5
Cartoned price, New York, grade A large (cts./doz.) 3/	82.2	77.5	65.4	63.1	65.3	75.3	73.6	71.7	69.9	85.2
Price of laying feed (\$/ton)	200	192	199	201	196	197	195	198	198	199
Egg-feed price ratio 1/	7.0	8.8	5.7	5.4	5.8	6.6	6.6	6.4	6.2	7.1
<b>Stocks, first of month</b>										
Shell (mil. doz.)	0.36	0.45	0.63	0.75	0.66	0.51	0.45	0.45	0.36	0.36
Frozen (mil. doz.)	10.3	11.2	12.3	14.6	15.2	16.5	14.2	13.0	12.7	12.9
Replacement chicks hatched (mil.)	398	420	386	35.5	32.0	26.9	29.5	33.4	33.7	37.3

1/ Pounds of feed equal in value to 1 dozen eggs or 1 lb. of broiler or turkey liveweight. 2/ Placement of broiler chicks is currently reported for 15 States only; henceforth, hatch of broiler-type chicks will be used as a substitute. 3/ Price of cartoned eggs to volume buyers for delivery to retailers.

Information contact: Maxine Davis (202) 219-0767.



Table 14.—Dairy

	Annual			1992				1993		
	1990	1991	1992	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Milk prices, Minnesota-Wisconsin, 3.5% fat (\$/cwt) 1/	12.21	11.05	11.88	10.98	12.05	11.84	11.34	10.89	10.74	11.02
Wholesale prices										
Butter, grade A Chf. (cts./lb.)	102.1	99.3	82.5	86.2	82.2	80.7	78.6	75.2	75.2	75.2
Am. cheese, Wis. assembly pt. (cts./lb.)	136.7	124.4	131.9	119.8	132.4	129.4	123.2	119.3	118.6	124.3
Nonfat dry milk (cts./lb.) 2/	100.6	94.0	107.1	101.8	108.0	109.1	109.2	111.0	113.8	113.3
USDA net removals 3/										
Total milk equiv. (mil. lb.) 4/	9,017.2	10,425.0	10,021.6	1,284.8	342.3	346.7	569.0	1,686.1	1,486.8	1,171.8
Butter (mil. lb.)	400.3	442.8	440.4	58.0	13.7	13.3	24.8	75.4	65.6	51.2
Am. cheese (mil. lb.)	21.5	76.9	16.1	7/	0.9	3.2	0.9	1.9	3.1	2.3
Nonfat dry milk (mil. lb.)	117.8	269.5	169.2	3.1	37.0	17.2	44.0	51.5	31.2	10.0
Milk										
Milk prod. 21 States (mil. lb.)	125,772	125,671	128,300	11,096	10,532	10,184	10,659	10,760	9,965	11,087
Milk per cow (lb.)	14,778	14,977	15,548	1,344	1,278	1,237	1,292	1,310	1,218	1,356
Number of milk cows (1,000)	8,512	8,391	8,253	8,257	8,238	8,235	8,247	8,215	8,196	8,178
U.S. milk production (mil. lb.)	148,314	148,477	151,747	8/ 13,167	8/ 12,465	8/ 12,072	8/ 12,629	8/ 12,758	8/ 11,825	8/ 13,161
Stock, beginning										
Total (mil. lb.)	9,038	13,359	15,841	18,273	17,921	16,038	14,828	14,215	16,410	16,398
Commercial (mil. lb.)	4,120	5,146	4,461	4,696	4,976	4,752	4,603	4,688	4,817	4,565
Government (mil. lb.)	4,918	8,213	11,379	13,578	12,945	11,286	10,223	9,526	10,593	10,831
Imports, total (mil. lb.)	2,690	2,625	2,520	178	226	263	323	171	135	—
Commercial disappearance (mil. lb.)	138,922	139,343	142,098	12,011	12,410	11,980	12,135	10,951	10,579	—
Butter										
Production (mil. lb.)	1,302.2	1,335.8	1,365.2	133.2	101.8	98.3	119.8	144.4	138.9	139.1
Stocks, beginning (mil. lb.)	256.2	416.1	539.4	824.9	808.5	541.7	487.6	447.7	495.4	497.0
Commercial disappearance (mil. lb.)	915.2	903.0	943.2	79.9	89.9	88.3	97.2	70.5	76.9	—
American cheese										
Production (mil. lb.)	2,894.2	2,768.9	2,936.6	242.4	237.9	230.6	259.8	247.8	222.9	236.1
Stocks, beginning (mil. lb.)	236.2	347.4	318.7	349.8	350.5	328.9	324.8	346.7	352.1	332.6
Commercial disappearance (mil. lb.)	2,784.4	2,755.9	2,900.9	257.2	257.0	239.2	239.4	240.8	238.8	—
Other cheese										
Production (mil. lb.)	3,167.0	3,250.0	3,651.7	301.4	320.3	316.9	312.0	261.3	266.0	307.9
Stocks, beginning (mil. lb.)	93.2	110.6	97.5	97.9	121.1	121.7	121.9	120.9	129.3	124.4
Commercial disappearance (mil. lb.)	3,426.4	3,539.2	3,794.9	303.2	344.4	345.6	349.8	266.8	284.2	—
Nonfat dry milk										
Production (mil. lb.)	879.2	877.5	872.1	83.5	63.3	65.7	79.2	76.6	83.6	69.1
Stocks, beginning (mil. lb.)	49.5	161.9	214.8	153.1	112.0	90.8	87.6	81.2	72.4	71.5
Commercial disappearance (mil. lb.)	697.6	662.7	688.0	82.6	30.0	40.5	38.3	32.2	52.4	—
Frozen dessert										
Production (mil. gal.) 5/	1,174.8	1,203.1	1,196.8	106.7	88.7	76.1	77.9	73.4	81.7	101.6
	Annual			1991		1992				1993
	1990	1991	1992	III	IV	I	II	III	IV	I
Milk production (mil. lb.)	148,314	148,477	151,747	36,232	36,270	37,989	39,077	37,515	37,166	37,764
Milk per cow (lb.)	14,642	14,860	15,423	3,643	3,655	3,852	3,971	3,818	3,782	3,863
No. of milk cows (1,000)	10,127	9,992	9,839	9,944	9,923	9,863	9,841	9,826	9,827	9,775
Milk-feed price ratio 6/	1.71	1.58	1.69	1.59	1.77	1.68	1.65	1.75	1.69	1.60
Returns over concentrate costs (\$/cwt milk) 6/	10.17	8.95	9.74	9.25	10.45	9.80	9.50	10.10	8.75	9.00

1/ Manufacturing grade milk. 2/ Prices paid f.o.b. Central States production area. 3/ Includes products exported through the Dairy Export Incentive Program (DEIP).

4/ Milk equivalent, fat basis. 5/ Hard ice cream, ice milk, & hard sherbet. 6/ Based on average milk price after adjustment for price support deductions.

7/ Less than 50,000 pounds. 8/ Estimated. — = not available.

Information contact: LaVerne T. Williams (202) 219-0770.

Table 15.—Wool

	Annual			1991		1992				1993
	1990	1991	1992	IV	I	II	III	IV	I	
U.S. wool price, (cts./lb.) 1/	256	199	204	182	209	222	210	176	148	
Imported wool price, (cts./lb.) 2/	287	187	210	222	250	233	203	189	171	
U.S. mill consumption, scoured										
Apparel wool (1,000 lb.)	120,622	137,167	139,715	33,916	36,929	36,045	34,462	32,279	—	
Carpet wool (1,000 lb.)	12,124	14,352	14,726	3,588	4,580	3,623	3,145	3,378	—	

1/ Wool price delivered at U.S. mills, clean basis. Graded Territory 64's (20.60-22.04 microns) staple 2-3/4" & up. 2/ Wool price, Charleston, SC warehouse, clean basis. Australian 60/62's, type 64A (24 micron). Duty since 1982 has been 10.0 cents. — = not available.

Information contact: John Lawler (202) 219-0840

Table 16.—Meat Animals

	Annual			1992				1993		
	1990	1991	1992	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Cattle on feed (7 States)										
Number on feed (1,000 head) 1/	8,378	8,992	8,397	8,155	7,495	8,584	8,894	8,073	9,055	8,768
Placed on feed (1,000 head)	21,030	19,704	20,498	1,506	2,658	1,843	1,694	1,621	1,262	1,621
Marketings (1,000 head)	19,198	19,066	18,623	1,536	1,493	1,442	1,414	1,509	1,441	1,565
Other disappearance (1,000 head)	1,218	1,233	1,199	117	78	91	101	130	110	111
Beef steer-corn price ratio,										
Omaha 2/	32.8	31.6	33.3	30.4	37.4	38.0	38.8	39.6	40.0	38.7
Hog-corn price ratio, Omaha 2/	23.1	21.1	19.0	15.5	21.3	21.0	21.2	20.7	22.2	22.1
Market prices (\$/cwt)										
Slaughter cattle										
Choice steers, Omaha 1,000-1,100 lb.	77.40	73.83	74.65	78.58	74.13	74.41	75.58	79.15	80.38	82.45
Choice steers, Neb. Direct, 1,100-1,300 lb.	78.58	74.28	75.36	78.02	75.12	76.11	77.34	79.01	80.34	82.60
Boning utility cows, Sioux Falls	53.60	50.31	44.84	45.94	45.69	42.09	44.71	46.50	47.25	49.50
Feeder cattle										
Medium no. 1, Oklahoma City 600-700 lb.	92.15	92.74	85.57	84.80	85.23	85.90	86.67	89.92	89.06	90.49
Slaughter hogs										
Barrows & gilts, Iowa, S. Minn.	55.32	49.69	43.05	39.65	42.69	42.03	42.73	42.18	44.81	47.51
Feeder pigs										
S. Mo. 40-50 lb. (per head)	51.46	39.84	31.71	37.57	32.44	30.69	29.78	34.63	48.17	51.38
Slaughter sheep & lambs										
Lambs, Choice, San Angelo	55.54	53.21	61.00	66.55	52.81	56.93	67.25	69.88	73.38	75.50
Ewes, Good, San Angelo	35.21	31.98	35.39	42.60	29.56	32.92	40.75	39.94	43.44	46.80
Feeder lambs										
Choice, San Angelo	62.95	53.54	62.09	68.25	52.94	58.76	71.13	73.63	76.09	84.10
Wholesale meat prices, Midwest										
Boxed beef cut-out value	123.21	118.31	116.73	119.14	115.51	115.26	119.95	122.69	122.13	124.80
Canner & cutter cow beef	99.96	99.42	93.85	98.49	90.85	88.13	95.31	96.58	97.23	96.13
Pork loins, 14-18 lb. 3/	117.52	108.39	101.41	94.10	98.98	89.64	96.22	98.22	100.05	100.61
Pork bellies, 12-14 lb.	53.80	47.79	30.39	28.01	29.13	30.48	28.80	31.97	33.22	41.28
Hams, skinned, 17-20 lb.	84.87	75.68	67.42	62.18	78.58	62.45	72.67	61.98	68.83	73.78
All fresh beef retail price 4/	262.48	271.05	266.87	269.19	267.75	267.14	268.95	270.43	272.48	273.21
Commercial slaughter (1,000 head) 5/										
Cattle	33,241	32,690	32,873	2,668	2,864	2,560	2,703	2,669	2,466	2,775
Steers	16,587	16,728	17,135	1,370	1,433	1,271	1,393	1,334	1,264	1,434
Heifers	10,090	9,725	9,236	759	802	706	710	753	690	747
Cows	5,920	5,623	5,848	487	564	531	560	533	466	542
Bulls & stags	644	614	653	52	64	61	50	49	46	62
Calves	1,789	1,436	1,371	122	114	113	124	104	99	119
Sheep & lambs	5,654	5,722	5,493	496	470	428	478	393	395	489
Hogs	85,138	88,169	94,888	8,124	8,792	7,988	8,360	7,832	7,092	8,146
Commercial production (mil. lb.)										
Beef	22,634	22,800	22,968	1,850	2,016	1,784	1,855	1,823	1,877	1,858
Veal	316	296	299	27	24	23	26	22	21	26
Lamb & mutton	358	358	343	32	29	27	29	25	25	32
Pork	15,300	16,948	17,185	1,467	1,588	1,455	1,524	1,435	1,290	1,481

	Annual			1991	1992				1993	
	1990	1991	1992		I	II	III	IV	I	II
Cattle on feed (13 States)										
Number on feed (1,000 head) 1/	9,943	10,627	10,135	8,620	10,135	9,693	8,847	8,920	10,884	10,492
Placed on feed (1,000 head)	24,803	23,208	24,248	7,088	5,403	5,273	6,107	7,463	5,326	—
Marketings (1,000 head)	22,526	22,383	22,061	5,282	6,441	5,675	5,766	5,179	5,309	* 5,865
Other disappearance (1,000 head)	1,393	1,617	1,436	309	404	444	268	320	439	—
Hogs & pigs (10 States) 6/										
Inventory (1,000 head) 1/	42,200	45,735	47,940	47,080	45,735	44,800	47,255	49,175	47,440	46,880
Breeding (1,000 head) 1/	5,275	5,610	5,800	5,680	5,610	5,555	5,845	5,840	5,740	5,850
Market (1,000 head) 1/	36,925	40,126	42,140	41,400	40,125	39,245	41,410	43,335	41,700	41,030
Farrowings (1,000 head)	8,960	9,618	9,938	2,348	2,296	2,663	2,521	2,458	2,340	* 2,710
Pig crop (1,000 head)	70,589	75,330	80,490	18,551	18,532	21,570	20,559	19,829	19,156	—

1/ Beginning of period. 2/ Bushels of corn equal in value to 100 pounds live weight. 3/ Prior to 1984, 8-14 lb.; 1984 & 1985, 14-17 lb.; beginning 1986, 14-18 lb. 4/ New series estimating the composite price of all beef grades & ground beef sold by retail stores. This new series is in addition to, but does not replace, the series for the retail price of Choice beef that appears in table 8. 5/ Classes estimated. 6/ Quarters are Dec. of preceding year-Feb. (I), Mar.-May (II), June-Aug. (III), & Sept.-Nov. (IV). May not add to NASS totals due to rounding. — = not available. \* Intentions.

Information contact: Polly Cochran (202) 219-0767.



## Crops &amp; Products

Table 17.—Supply & Utilization<sup>1,2</sup>

	Area			Yield	Production	Total supply <sup>4/</sup>	Feed and residual	Other domestic use	Exports	Total use	Ending stocks	Farm price <sup>5/</sup>
	Set aside <sup>3/</sup>	Planted	Harvested									
	Mil. acres		Bu./acre									\$/bu.
Wheat												
1988/89	22.5	65.5	53.2	34.1	1,812	3,096	146	829	1,419	2,394	702	3.72
1989/90	9.6	76.6	62.2	32.7	2,037	2,762	139	853	1,233	2,225	536	3.72
1990/91	7.5	77.2	69.3	39.5	2,736	3,309	600	875	1,068	2,443	866	2.61
1991/92*	15.9	69.9	57.7	34.3	1,981	2,888	254	883	1,280	2,416	472	3.00
1992/93*	7.3	72.3	62.4	39.4	2,459	2,999	225	923	1,340	2,488	510	3.25
1993/94*	—	72.3	64.5	38.9	2,508	3,093	275	935	1,225	2,435	658	2.55-2.95
Rice												
	Mil. acres		Lb./acre					Mil. cwt (rough equiv.)				\$/cwt
1988/89	1.09	2.93	2.90	5,514	159.9	195.1	—	8/ 82.4	85.9	168.4	26.7	6.83
1989/90	1.18	2.73	2.69	5,749	154.5	185.6	—	8/ 82.1	77.2	159.3	26.4	7.35
1990/91	1.02	2.90	2.82	5,529	156.1	187.2	—	8/ 91.7	70.9	162.7	24.8	6.70
1991/92*	0.9	2.88	2.78	5,674	157.5	187.3	—	8/ 93.7	66.4	160.1	27.3	7.58
1992/93*	0.4	3.17	3.13	5,722	179.1	212.1	—	8/ 97.6	76.0	173.6	38.8	5.80-6.00
1993/94*	—	3.13	3.06	5,655	173.0	217.6	—	8/ 100.5	80.0	180.5	37.1	4.50-6.00
Corn												
	Mil. acres		Bu./acre									\$/bu.
1988/89	20.5	67.7	56.3	84.5	4,929	9,191	3,941	1,293	2,026	7,280	1,930	2.54
1989/90	10.8	72.2	64.7	116.3	7,525	9,458	4,389	1,356	2,368	8,113	1,344	2.38
1990/91	10.7	74.2	67.0	118.5	7,934	9,282	4,863	1,373	1,725	7,791	1,521	2.28
1991/92*	7.4	76.0	68.8	108.6	7,475	9,016	4,878	1,454	1,584	7,916	1,100	2.37
1992/93*	5.3	79.3	72.1	131.4	9,479	10,583	5,250	1,495	1,725	8,470	2,113	2.00-2.15
1993/94*	—	78.5	69.3	122.7	8,500	10,618	5,400	1,550	1,550	8,500	2,118	1.85-2.25
Sorghum												
	Mil. acres		Bu./acre									\$/bu.
1988/89	3.9	10.3	9.0	63.8	577	1,239	466	23	311	800	440	2.27
1989/90	3.3	12.6	11.1	55.4	615	1,055	517	16	303	835	220	2.10
1990/91	3.3	10.5	9.1	63.1	573	793	410	9	232	851	143	2.12
1991/92*	2.5	11.1	9.9	59.3	585	727	374	9	292	674	53	2.25
1992/93*	2.0	13.3	12.2	72.8	884	937	475	8	275	758	180	1.80-1.95
1993/94*	—	11.2	10.0	66.0	660	840	425	8	275	708	132	1.70-2.20
Barley												
	Mil. acres		Bu./acre									\$/bu.
1988/89	2.8	9.8	7.6	38.0	290	622	171	175	79	425	196	2.80
1989/90	2.3	9.1	8.3	48.6	404	614	193	175	84	453	161	2.42
1990/91	2.9	8.2	7.5	56.1	422	596	205	176	81	461	135	2.14
1991/92*	2.2	8.9	8.4	55.2	464	624	230	171	94	496	129	2.10
1992/93*	2.3	7.8	7.3	62.4	458	597	195	165	80	440	157	2.03
1993/94*	—	7.7	7.1	57.0	405	582	190	165	80	435	147	1.85-2.25
Oats												
	Mil. acres		Bu./acre									\$/bu.
1988/89	0.3	13.9	5.5	39.3	218	392	194	100	1	294	98	2.81
1989/90	0.4	12.1	6.9	54.3	374	538	266	115	1	381	157	1.49
1990/91	0.2	10.4	5.9	60.1	358	578	286	120	1	407	171	1.14
1991/92*	0.6	8.7	4.8	60.7	243	489	235	125	2	362	129	1.20
1992/93*	0.7	8.0	4.5	65.6	295	472	230	125	6	361	111	1.33
1993/94*	—	8.1	4.4	65.5	245	421	185	125	5	315	106	1.15-1.55
Soybeans												
	Mil. acres		Bu./acre									\$/bu.
1988/89	0	58.8	57.4	27.0	1,649	1,855	7/ 88	1,058	527	1,673	182	7.42
1989/90	0	60.8	59.5	32.3	1,924	2,109	7/ 101	1,146	623	1,870	239	5.89
1990/91	0	57.8	56.5	34.1	1,926	2,188	7/ 95	1,187	557	1,839	329	5.74
1991/92*	0	59.2	58.0	34.2	1,987	2,319	7/ 102	1,254	685	2,041	278	5.58
1992/93*	0	59.3	58.4	37.6	2,197	2,477	7/ 112	1,275	765	2,152	325	5.50
1993/94*	0	59.3	58.2	35.1	2,045	2,373	7/ 98	1,275	720	2,093	280	5.25-6.25
Soybean oil												
								Mil. lbs.				\$/ Cts./lb.
1988/89	—	—	—	—	11,737	13,967	—	10,591	1,661	12,252	1,715	21.10
1989/90	—	—	—	—	13,004	14,741	—	12,083	1,353	13,436	1,305	22.30
1990/91	—	—	—	—	13,408	14,730	—	12,164	780	12,944	1,788	21.00
1991/92*	—	—	—	—	14,345	16,132	—	12,245	1,648	13,893	2,239	19.10
1992/93*	—	—	—	—	13,784	16,025	—	12,678	1,600	14,275	1,750	20.75
1993/94*	—	—	—	—	14,520	16,275	—	12,850	1,550	14,400	1,875	20.0-23.0
Soybean meal												
								1,000 tons				\$/ ton
1988/89	—	—	—	—	24,943	25,100	—	19,657	5,270	24,927	173	252
1989/90	—	—	—	—	27,719	27,900	—	22,263	5,319	27,582	318	188
1990/91	—	—	—	—	28,325	28,588	—	22,934	5,489	28,403	285	181
1991/92*	—	—	—	—	29,831	30,183	—	23,103	6,850	29,953	230	189
1992/93*	—	—	—	—	30,335	30,675	—	23,750	6,625	30,375	300	185
1993/94*	—	—	—	—	30,325	30,700	—	24,000	6,400	30,400	300	170-190

See footnotes at end of table.

Table 17.—Supply &amp; Utilization, continued

	Area		Harvested	Yield	Production	Total supply	Feed and residual	Other domestic use	Exports	Total use	Ending Stocks	Farm price
	Set Aside	Planted										
	3/					4/						5/
		Mil. acres		Lb./acre				Mil. bales				Cts./lb.
Cotton 10/												
1988/89	2.2	12.5	11.9	619	15.4	21.2	—	7.6	6.1	13.9	7.1	56.60
1989/90	3.5	10.6	9.5	614	12.2	19.3	—	8.8	7.7	16.5	3.0	65.60
1990/91	2.0	12.3	11.7	634	15.5	18.5	—	8.7	7.8	16.5	2.3	67.10
1991/92	1.2	14.1	13.0	652	17.6	20.0	—	9.6	6.7	16.3	3.7	58.10
1992/93	1.7	13.2	11.1	699	16.2	19.9	—	9.8	5.7	15.6	4.4	53.60
1993/94	—	13.4	12.4	680	17.5	21.9	—	10.3	6.0	16.3	5.7	12/

\* May 11, 1993 Supply & Demand Estimates. 1/ Marketing year beginning June 1 for wheat, barley, & oats, August 1 for cotton & rice, September 1 for soybeans, corn, & sorghum, October 1 for soybean meal & soybean oil. 2/ Conversion factors: Hectare (ha.) = 2.471 acres, 1 metric ton = 2,204.622 pounds, 36.7437 bushels of wheat or soybeans, 39.3679 bushels of corn or sorghum, 45.9296 bushels of barley, 68.8944 bushels of oats, 22.046 cwt of rice, & 4.59 480-pound bales of cotton. 3/ Includes diversion, acreage reduction, 50-92, & 0-92 programs. 0/92 & 50/92 set-aside includes killed acreage & acreage planted to minor oilseeds, sesame, and crambe. 4/ Includes imports. 5/ Marketing-year weighted average price received by farmers. Does not include an allowance for loans outstanding & Government purchases. 6/ Residual included in domestic use. 7/ Includes seed. 8/ Simple average of crude soybean oil, Decatur. 9/ Simple average of 48 percent, Decatur. 10/ Upland & extra long staple. Stocks estimates based on Census Bureau data, resulting in an unaccounted difference between supply & use estimates & changes in ending stocks. 11/ Weighted average for August-April; not a projection for the marketing year. 12/ USDA is prohibited from publishing cotton price projections. — = not available or not applicable.

Information contact: Commodity Economics Division, Crops Branch (202) 219-0840.

Table 18.—Cash Prices, Selected U.S. Commodities

	Marketing year 1/				1992			1993		
	1988/89	1989/90	1990/91	1991/92	Mar	Nov	Dec	Jan	Feb	Mar
Wheat, No. 1 HRW, Kansas City (\$/bu.) 2/	4.17	4.22	2.94	3.77	4.33	3.78	3.81	3.97	3.75	3.74
Wheat, DNS, Minneapolis (\$/bu.) 3/	4.36	4.16	3.06	3.82	4.36	3.94	3.88	4.05	3.87	3.87
Rice, S.W. La. (\$/cwt) 4/	14.85	15.55	15.25	16.48	16.60	14.45	14.25	13.40	13.00	12.50
Corn, no. 2 yellow, 30 day, Chicago (\$/bu.)	2.68	2.64	2.41	2.52	2.72	2.13	2.17	2.18	2.14	2.23
Sorghum, no. 2 yellow, Kansas City (\$/cwt)	4.17	4.21	4.08	4.36	4.78	3.61	3.70	3.70	3.66	3.70
Barley, feed, Duluth (\$/bu.) 5/	2.32	2.20	2.13	2.17	2.30	2.08	2.06	2.06	2.08	2.12
Barley, malting, Minneapolis (\$/bu.)	4.11	3.28	2.42	2.38	2.50	2.35	2.36	2.35	2.32	2.33
U.S. price, SLM, 1-1/16 in. (cts./lb.) 6/	57.7	69.8	74.8	56.7	52.0	50.0	51.9	53.7	55.4	56.5
Northern Europe Price Index (cts./lb.) 7/	66.4	82.3	82.9	62.9	55.3	52.6	54.3	57.4	60.8	61.4
U.S. M 1-3/32 in. (cts./lb.) 8/	69.2	83.6	88.2	66.3	59.8	60.8	61.9	63.4	66.1	66.6
Soybeans, no. 1 yellow, 30 day, Chicago (\$/bu.)	7.41	5.88	5.78	5.75	5.88	5.56	6.66	5.73	5.56	5.59
Soybean oil, crude, Decatur (cts./lb.)	21.10	22.30	21.00	19.10	19.74	20.10	20.52	21.23	20.72	21.00
Soybean meal, 48% protein, Decatur (\$/ton) 9/	252.40	186.50	181.40	189.20	185.90	181.90	187.60	186.75	179.90	183.60

1/ Beginning June 1 for wheat & barley; Aug. 1 for rice & cotton; Sept. 1 for corn, sorghum & soybeans; Oct. 1 for soybean meal & oil. 2/ Ordinary protein. 3/ 14% protein. 4/ Long grain, milled basis. 5/ Beginning Mar. 1987 reporting point changed from Minneapolis to Duluth. 6/ Average spot market. 7/ Liverpool Cotton "A" Index; average of five lowest prices of 13 selected growths. 8/ Memphis territory growths. 9/ Note change to 48% protein. NC = no quotation.

Information contacts: Wheat, rice, & feed grains, Joy Harwood (202) 219-0840; Cotton, Lee Meyer (202) 219-0840; Soybeans, Brenda Toland, (202) 219-0840.



Table 19.—Farm Programs, Price Supports, Participation &amp; Payment Rates

	Target price	Basic loan rate	Findlay or announced loan rate 1/	Payment rates		Effective base acres 2/	Program 3/	Participation rate 4/	
				Total deficiency	Paid land diversion				
					Mandatory				Optional
				\$/bu.		Mil. acres	Percent of base	Percent of base	
Wheat									
1987/88	4.38	2.85	2.28	1.81	---	87.6	27.5/0/0	88	
1988/89	4.23	2.76	2.21	0.69	---	84.8	27.5/0/0	86	
1989/90	4.10	2.58	2.06	0.32	---	82.3	10/0/0	78	
1990/91 5/	4.00	2.44	1.95	1.28	---	80.5	6/ 5/0/0	83	
1991/92	4.00	2.52	2.04	*1.35	---	79.2	15/0/0	85	
1992/93	4.00	2.58	2.21	**0.81	---	78.9	5/0/0	83	
1993/94	4.00	2.86	2.45	***1.05	---	---	0/0/0	---	
Rice									
				\$/cwt					
1987/88	11.66	6.84	7/ 8.15	4.82	---	4.2	35/0/0	98	
1988/89	11.15	6.63	7/ 8.50	4.31	---	4.2	25/0/0	94	
1989/90	10.80	6.50	7/ 8.00	3.56	---	4.2	25/0/0	94	
1990/91 5/	10.71	6.50	7/ 5.40	4.16	---	4.2	20/0/0	95	
1991/92	10.71	6.50	7/ 5.85	3.07	---	4.2	5/0/0	95	
1992/93	10.71	6.50	---	**4.21	---	4.1	0/0/0	98	
1993/94	10.71	6.50	---	***4.21	---	---	5/0/0	---	
Corn									
				\$/bu.					
1987/88	3.03	2.28	1.82	1.09	---	81.5	20/0/15	90	
1988/89	2.93	2.21	1.77	0.36	---	82.9	20/0/10	87	
1989/90	2.84	2.08	1.65	0.68	---	82.7	10/0/0	79	
1990/91 5/	2.75	1.98	1.57	0.51	---	82.6	10/0/0	78	
1991/92	2.75	1.89	1.62	0.41	---	82.7	7.5/0/0	77	
1992/93	2.75	2.01	1.72	*0.73	---	82.1	5/0/0	76	
1993/94	2.75	1.99	1.72	**0.72	---	---	10/0/0	---	
Sorghum									
				\$/bu.					
1987/88	2.88	2.17	1.74	1.14	---	17.4	8/ 20/0/15	84	
1988/89	2.78	2.10	1.68	0.48	---	16.8	20/0/10	82	
1989/90	2.70	1.98	1.57	0.66	---	16.2	10/0/0	71	
1990/91 5/	2.61	1.88	1.49	0.56	---	16.4	10/0/0	70	
1991/92	2.61	1.80	1.54	0.37	---	15.5	7.5/0/0	77	
1992/93	2.61	1.91	1.63	*0.70	---	13.6	5/0/0	79	
1993/94	2.61	1.89	1.63	**0.70	---	---	5/0/0	---	
Barley									
				\$/bu.					
1987/88	2.60	1.86	1.49	0.79	---	12.5	8/ 20/0/15	85	
1988/89	2.51	1.80	1.44	0.00	---	12.5	20/0/10	79	
1989/90	2.44	1.68	1.34	0.00	---	12.3	10/0/0	67	
1990/91 5/	2.36	1.60	1.28	0.20	---	11.9	10/0/0	68	
1991/92	2.36	1.54	1.32	0.62	---	11.5	7.5/0/0	76	
1992/93	2.36	1.64	1.40	*0.58	---	11.1	5/0/0	75	
1993/94	2.36	1.62	1.40	**0.52	---	---	0/0/0	---	
Oats									
				\$/bu.					
1987/88	1.60	1.17	0.94	0.20	---	8.4	8/ 20/0/15	45	
1988/89	1.55	1.14	0.91	0.00	---	7.9	5/0/0	30	
1989/90	1.50	1.06	0.85	0.00	---	7.6	5/0/0	18	
1990/91 5/	1.45	1.01	0.81	0.32	---	7.5	5/0/0	09	
1991/92	1.45	0.97	0.83	0.35	---	7.3	0/0/0	38	
1992/93	1.45	1.03	0.88	*0.17	---	7.2	0/0/0	40	
1993/94	1.45	1.02	0.88	**0.15	---	---	0/0/0	---	
Soybeans 9/									
				\$/bu.					
1987/88	---	---	4.77	---	---	---	---	---	
1988/89	---	---	4.77	---	---	---	---	---	
1989/90	---	---	4.53	---	---	---	10/ 10/25	---	
1990/91 5/	---	---	4.50	---	---	---	10/ 0/25	---	
1991/92	---	---	5.02	---	---	---	10/ 0/25	---	
1992/93	---	---	5.02	---	---	---	10/ 0/25	---	
1993/94	---	---	5.02	---	---	---	10/ 0/25	---	
Upland cotton									
				Cts./lb.					
1987/88	79.4	52.25	11/ 52.25	17.3	---	14.5	25/0/0	93	
1988/89	75.9	51.80	11/ 51.80	19.4	---	14.5	12.5/0/0	89	
1989/90	73.4	50.00	11/ 50.00	13.1	---	14.6	25/0/0	86	
1990/91 5/	72.3	50.27	11/ 50.27	7.3	---	14.4	12.5/0/0	89	
1991/92 12/	72.9	50.77	11/ 47.23	10.1	---	14.6	5/0/0	84	
1992/93	72.8	52.35	11/ ---	*20.3	---	14.9	10/0/0	89	
1993/94	72.9	52.35	11/ ---	**20.55	---	---	7.5/0/0	---	

1/ There are no Findlay loan rates for rice or cotton. See footnotes 7/ & 11/. 2/ National effective crop acreage base as determined by ASCS. Net of CRP.  
 3/ Program requirements for participating producers (mandatory acreage reduction program/mandatory paid land diversion/optional paid land diversion). Acres idled must be devoted to a conserving use to receive program benefits. 4/ Percentage of effective base acres enrolled in acreage reduction programs. 5/ Payments & loans were reduced by 1.4 percent in 1990/91 due to Gramm-Rudman-Hollings. Budget Reconciliation Act reductions to deficiency payments rates were also in effect in that year. Data do not include these reductions. 6/ Under 1990 modified contracts, participating producers plant up to 105 percent of their wheat base acres. For every acre planted above 95 percent of base, the acreage used to compute deficiency payments was cut by 1 acre. 7/ A marketing loan has been in effect for rice since 1985/86. Loans may be repaid at the lower of: a) the loan rate or b) the adjusted world market price (announced weekly). However, loans cannot be repaid at less than a specified fraction of the loan rate. Data refer to market-year average loan repayment rates. 8/ The sorghum, oats, & barley programs are the same as for corn except as indicated. 9/ There are no target prices, base acres, acreage reduction programs, or deficiency payment rates for soybeans. 10/ Nominal percentage of program crop base acres permitted to shift into soybeans without loss of base. 11/ A marketing loan has been in effect for cotton since 1986/87. In 1987/88 & after, loans may be repaid at the lower of: a) the loan rate or b) the adjusted world market price (announced weekly; Plan B). Starting in 1991/92, loans cannot be repaid at less than 70 percent of the loan rate. Data refer to annual average loan repayment rates. 12/ A marketing certificate program was implemented on Aug. 1, 1991. --- = not available.

\* For wheat, the 1991/92 rate is the total deficiency payment rate for the "regular" program. For the winter wheat option, the rate is \$1.25.  
 \*\* For wheat, corn, sorghum, barley, and oats, regular deficiency payment rate based on the 5-month price. For rice and upland cotton, total deficiency payment rate.  
 \*\*\* Estimated total deficiency payment rate. Minimum guaranteed payment rate for 0/92 (wheat & feed grains) & 50/92 (rice and upland cotton) programs. Sign-up for 1993 programs was March 1-April 30, 1993.

Information contact: Joy Harwood (202) 219-0840.

Table 20.—Fruit

	1984	1985	1986	1987	1988	1989	1990	1991 P	1992 P
Citrus 1/ Production (1,000 ton)	10,832	10,525	11,058	11,993	12,761	13,186	10,880	11,285	12,386
Per capita consumpt. (lbs.) 2/	22.6	21.6	24.3	24.0	25.4	25.1	22.1	19.9	—
Noncitrus 3/ Production (1,000 tons)	14,301	14,191	13,874	16,011	15,893	16,365	15,656	15,801	16,939
Per capita consumpt. (lbs.) 2/	66.3	65.3	68.8	73.5	72.0	73.6	70.6	70.7	—
	1992						1993		
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
F.o.b. shipping point prices									
Apples (\$/canton) 4/	16.56	25.70	16.73	15.38	14.46	13.60	14.50	12.33	10.66
Pears (\$/box) 5/	14.30	—	—	13.05	13.54	13.88	16.00	16.00	16.00
Grower prices									
Oranges (\$/box) 6/	2.06	1.65	1.37	1.79	3.80	2.90	2.66	2.39	2.11
Grapefruit (\$/box) 6/	4.00	3.32	3.73	7.09	4.11	4.66	3.00	2.42	1.48
Stocks, ending									
Fresh apples (mil. lbs.)	106.5	33.5	3,479.5	5,580.0	4,988.3	4,077.3	3,433.1	2,769.3	2,011.1
Fresh pears (mil. lbs.)	49.4	139.1	523.1	380.4	276.7	223.4	174.2	128.1	81.7
Frozen fruits (mil. lbs.)	803.1	881.0	935.3	1,073.5	1,008.2	888.4	823.3	842.1	744.0
Frozen orange juice (mil. lbs.)	978.0	874.9	742.0	666.2	638.0	892.9	1,135.9	1,289.4	1,265.4

1/ 1992 Indicated 1991/92 season. 2/ Fresh per capita consumption. 3/ Calendar year. 4/ Red delicious, Washington, extra fancy, carton tray pack, 125's. 5/ D'Anjou, Washington, standard box wrapped, U.S. no. 1, 135's. 6/ U.S. equivalent on-tree returns. P = preliminary. — = not available.

Information contact: Wynne Napper (202) 219-0884.

Table 21.—Vegetables

	Calendar year									
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 P
Production										
Total vegetables (1,000 cwt)	403,509	456,334	453,030	448,629	478,381	468,779	542,437	561,704	564,582	534,951
Fresh (1,000 cwt) 1/ 3/	185,782	201,817	203,548	203,165	220,539	228,397	239,281	239,104	229,508	236,140
Processed (tons) 2/ 3/	10,886,350	12,725,880	12,474,040	12,273,200	12,892,100	12,019,110	15,157,790	18,130,020	18,753,820	14,940,650
Mushrooms (1,000 lbs.) 4/	561,531	595,681	587,958	614,393	631,819	667,759	714,992	749,151	738,832	—
Potatoes (1,000 cwt)	333,726	362,039	406,609	361,743	389,320	356,438	370,444	402,110	417,622	411,836
Sweetpotatoes (1,000 cwt)	12,083	12,902	14,573	12,388	11,611	10,945	11,358	12,594	11,203	11,780
Dry edible beans (1,000 cwt)	18,520	21,070	22,208	22,960	26,031	19,253	23,729	32,379	33,765	22,047
	1992						1993			
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Shipments										
Fresh (1,000 cwt) 5/	29,058	25,358	15,813	18,112	14,931	16,629	19,492	19,087	18,977	24,099
Potatoes (1,000 cwt)	11,768	10,946	9,418	13,306	11,363	11,867	13,841	13,376	11,180	18,545
Sweetpotatoes (1,000 cwt)	184	248	130	348	359	771	639	291	270	468

1/ Includes fresh production of asparagus, broccoli, carrots, cauliflower, celery, sweet corn, lettuce, honeydews, onions, & tomatoes. 2/ Includes processing production of snap beans, sweet corn, green peas, tomatoes, cucumbers (for pickles), asparagus, broccoli, carrots, & cauliflower. 3/ Asparagus & cucumber estimates were not available for 1982 & 1983. 4/ Fresh & processing agaricus mushrooms only. Excludes specialty varieties. Crop year July 1 - June 30. 5/ Includes snap beans, broccoli, cabbage, carrots, cauliflower, celery, sweet corn, cucumbers, eggplant, lettuce, onions, bell peppers, squash, tomatoes, cantaloupes, honeydews, & watermelons. P = preliminary.

Information contacts: Gary Lucier or John Love (202) 219-0884.

Table 22.—Other Commodities

	Annual					1991					1992			
	1988	1989	1990	1991	1992	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec				
Sugar														
Production 1/	7,087	6,841	6,334	7,133	7,501	3,655	2,136	716	722	3,827				
Deliveries 1/	8,188	8,340	8,661	8,704	8,920	2,242	2,007	2,208	2,409	2,296				
Stocks, ending 1/	3,132	2,847	2,729	3,039	3,220	3,039	3,624	2,757	1,451	3,220				
Coffee														
Composite green price N.Y. (cts./lb.)	119.59	95.17	78.93	70.09	55.30	64.84	59.19	61.72	48.36	61.94				
Imports, green bean equiv. (mil. lbs.) 2/	2,072	2,685	2,715	2,553	2,889	899	840	720	704	705				
	Annual					1992								
	1989	1990	1991	Dec	July	Aug	Sept	Oct	Nov	Dec				
Tobacco														
Prices at auctions 3/														
Flue-cured (\$/lb.)	167.4	167.3	172.3	—	155.0	160.0	182.6	182.0	172.7	—				
Burley (\$/lb.)	167.2	175.3	178.8	180.0	—	—	—	—	182.7	182.5				
Domestic consumption 4/														
Cigarettes (bil.)	640.0	523.1	516.3	32.7	38.3	43.7	43.0	44.7	44.2	38.4				
Large cigars (mil.)	2,487.6	2,343.5	2,231.9	167.1	167.7	185.7	194.3	177.9	189.8	171.7				

1/ 1,000 short tons, raw value. Quarterly data shown at end of each quarter. 2/ Net imports of green & processed coffee. 3/ Crop year July-June for flue-cured, Oct.-Sept. for burley. 4/ Taxable removals. — = not available.

Information contacts: Sugar, Peter Buzzanell (202) 219-0886. Coffee, Fred Gray (202) 219-0888. Tobacco, Verner Grise (202) 219-0890.



## World Agriculture

Table 23.—World Supply &amp; Utilization of Major Crops, Livestock &amp; Products

	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92 P	1992/93 F
Million units							
<b>Wheat</b>							
Area (hectares)	228.0	219.7	217.4	225.8	231.4	222.0	221.2
Production (metric tons)	524.1	496.0	495.0	533.0	587.8	542.1	557.5
Exports (metric tons) 1/	90.9	108.9	98.2	97.0	94.4	109.1	100.3
Consumption (metric tons) 2/	515.6	524.7	525.6	530.2	563.6	559.3	551.2
Ending stocks (metric tons) 3/	178.0	149.2	118.7	121.4	145.8	128.4	134.7
<b>Coarse grains</b>							
Area (hectares)	335.3	323.1	323.2	320.9	313.5	317.4	318.1
Production (metric tons)	822.1	783.6	720.8	790.3	819.8	800.2	854.2
Exports (metric tons) 1/	82.9	84.7	95.0	102.9	87.3	93.2	90.4
Consumption (metric tons) 2/	796.2	806.5	785.2	814.4	807.5	807.4	828.0
Ending stocks (metric tons) 3/	235.2	212.4	148.0	123.9	136.3	129.1	155.2
<b>Rice, milled</b>							
Area (hectares)	145.1	141.7	145.4	146.7	147.1	145.9	145.6
Production (metric tons)	318.7	314.5	330.0	342.8	350.8	348.1	350.8
Exports (metric tons) 4/	12.9	11.8	15.0	12.2	12.9	15.1	14.1
Consumption (metric tons) 2/	320.7	320.0	327.8	335.9	345.5	352.7	354.0
Ending stocks (metric tons) 3/	51.4	45.8	48.3	55.0	60.0	65.4	52.2
<b>Total grains</b>							
Area (hectares)	708.4	684.5	686.0	693.4	692.0	685.3	684.9
Production (metric tons)	1,662.9	1,594.1	1,545.8	1,665.9	1,758.2	1,690.4	1,762.5
Exports (metric tons) 1/	188.7	203.4	208.2	212.1	194.8	217.4	204.8
Consumption (metric tons) 2/	1,632.5	1,651.2	1,638.4	1,680.5	1,716.8	1,719.4	1,733.2
Ending stocks (metric tons) 3/	464.6	407.4	315.0	300.3	341.9	312.9	342.1
<b>Oilseeds</b>							
Crush (metric tons)	181.8	168.4	164.5	172.0	177.4	185.4	184.7
Production (metric tons)	194.9	210.5	201.7	212.5	216.0	223.8	228.8
Exports (metric tons)	37.7	39.5	31.5	35.5	33.0	37.0	38.5
Ending stocks (metric tons)	23.3	24.0	22.1	23.3	22.8	21.3	22.7
<b>Meals</b>							
Production (metric tons)	110.7	115.4	111.3	117.1	119.8	124.9	125.3
Exports (metric tons)	36.7	35.8	37.4	38.5	39.4	42.3	41.2
<b>Oils</b>							
Production (metric tons)	50.4	53.3	53.3	57.1	58.2	60.4	60.8
Exports (metric tons)	18.9	17.5	18.1	19.8	20.2	19.9	19.9
<b>Cotton</b>							
Area (hectares)	29.2	30.8	33.7	31.5	33.1	34.7	32.8
Production (bales)	70.8	81.1	84.4	79.9	87.0	98.0	82.5
Exports (bales)	33.4	29.9	33.1	31.3	29.8	27.7	28.8
Consumption (bales)	82.8	84.1	85.3	86.7	85.5	85.0	84.4
Ending stocks (bales)	35.7	32.8	31.9	26.3	28.8	40.8	38.5
	1987	1988	1989	1990	1991	1992	1993 F
<b>Red meat</b>							
Production (metric tons)	112.9	116.8	118.1	120.3	121.3	121.3	123.1
Consumption (metric tons)	111.0	114.6	118.7	118.1	119.3	119.9	121.5
Exports (metric tons) 1/	6.7	7.4	7.8	7.8	8.0	7.8	8.0
<b>Poultry 5/</b>							
Production (metric tons)	31.3	32.7	34.0	35.8	37.8	39.2	40.9
Consumption (metric tons)	29.9	31.0	32.7	33.9	35.8	37.1	38.8
Exports (metric tons) 1/	1.3	1.5	1.7	1.9	2.1	2.2	2.3
<b>Dairy</b>							
Milk production (metric tons)	425.7	428.9	434.7	442.0	429.4	415.0	407.9

1/ Excludes intra-EC trade. 2/ Where stocks data not available (excluding USSR), consumption includes stock changes. 3/ Stocks data are based on differing marketing years & do not represent levels at a given date. Data not available for all countries; includes estimated change in USSR grain stocks but not absolute level. 4/ Calendar year data. 1987 data correspond with 1986/87, etc. 5/ Poultry excludes the Peoples Republic of China before 1988. P = preliminary. F = forecast.

Information contacts: Crops, Carol Whitton (202) 219-0824; red meat & poultry, Linda Bailey (202) 219-1285; dairy, Sara Short (202) 219-0770.

## U.S. Agricultural Trade

**Table 24.—Prices of Principal U.S. Agricultural Trade Products**

	Annual			1992				1993		
	1990	1991	1992	Mar	Oct	Nov	Dec	Jan	Feb	Mar
<b>Export commodities</b>										
Wheat, f.o.b. vessel, Gulf ports (\$/bu.)	3.72	3.52	4.13	4.63	3.85	4.03	4.03	4.25	4.06	4.05
Corn, f.o.b. vessel, Gulf ports (\$/bu.)	2.79	2.75	2.66	2.97	2.42	2.44	2.42	2.43	2.42	4.49
Grain sorghum, f.o.b. vessel, Gulf ports (\$/bu.)	2.85	2.69	2.63	3.06	2.33	2.39	2.45	2.44	2.42	4.46
Soybeans, f.o.b. vessel, Gulf ports (\$/bu.)	8.24	8.05	6.01	8.19	5.67	5.84	5.96	6.08	6.03	6.09
Soybean oil, Decatur (cts./lb.)	22.75	20.14	19.16	19.58	18.31	19.98	20.58	21.20	20.61	21.01
Soybean meal, Decatur (\$/ton)	169.37	172.90	177.79	174.89	180.63	181.18	188.30	188.18	179.87	183.37
Cotton, 7-market avg. spot (cts./lb.)	71.25	69.69	53.90	52.01	49.47	49.98	51.85	53.72	55.38	56.45
Tobacco, avg. price at auction (cts./lb.)	170.57	179.23	173.08	189.52	181.93	182.97	182.51	179.98	186.53	186.53
Rice, f.o.b. mill, Houston (\$/cwt)	15.52	16.48	16.80	17.50	16.50	16.13	15.83	15.25	15.00	15.00
Inedible tallow, Chicago (cts./lb.)	13.54	13.26	14.37	12.68	15.73	16.75	16.00	15.09	14.69	15.15
<b>Import commodities</b>										
Coffee, N.Y. spot (\$/lb.)	0.81	0.71	0.50	0.53	0.49	0.55	0.66	0.58	0.54	0.56
Rubber, N.Y. spot (cts./lb.)	46.28	45.73	46.25	44.51	47.83	48.00	48.03	48.03	48.30	46.41
Cocoa beans, N.Y. (\$/lb.)	0.55	0.52	0.47	0.49	0.48	0.46	0.44	0.45	0.42	0.41

Information contact: Mary Teymourian (202) 219-0824.

**Table 25.—Indexes of Real Trade-Weighted Dollar Exchange Rates <sup>1/</sup>**

	1992								1993		
	May	June	July	Aug	Sept	Oct P	Nov P	Dec P	Jan P	Feb P	Mar P
	1985 = 100										
Total U.S. trade <sup>2/</sup>	63.9	62.1	59.9	59.0	59.5	61.8	65.5	65.8	67.3	68.4	68.3
Agricultural trade											
U.S. markets	76.5	76.0	74.7	74.2	74.2	75.2	77.5	77.2	78.1	78.2	78.0
U.S. competitors	77.4	76.6	75.8	75.1	77.2	75.7	77.7	77.4	78.5	78.8	78.9
Wheat											
U.S. markets	98.3	95.8	94.8	94.2	94.1	94.1	95.7	94.9	96.1	96.8	97.4
U.S. competitors	70.9	70.4	69.4	69.3	74.4	71.2	73.3	73.3	74.1	73.7	73.0
Soybeans											
U.S. markets	63.3	62.9	61.4	60.7	60.4	61.9	64.6	64.2	65.6	66.0	65.6
U.S. competitors	55.5	54.9	54.9	54.2	53.6	53.3	53.6	53.0	53.3	53.7	53.9
Corn											
U.S. markets	67.5	68.0	67.2	67.1	66.4	67.3	69.2	68.9	69.6	69.3	68.6
U.S. competitors	59.2	58.0	58.5	55.7	55.5	55.9	57.5	57.2	57.5	57.7	57.6
Cotton											
U.S. markets	72.5	72.0	71.3	71.2	70.7	71.6	73.3	73.4	74.0	74.0	73.5
U.S. competitors	110.6	110.5	109.8	109.3	112.1	109.6	110.9	108.8	111.0	110.8	111.6

<sup>1/</sup> Real indexes adjust nominal exchange rates for differences in rates of inflation, to avoid the distortion caused by high-inflation countries. A higher value means the dollar has appreciated. See the October 1988 issue of Agricultural Outlook for a discussion of the calculations and the weights used. <sup>2/</sup> Federal Reserve Board index of trade-weighted value of the U.S. dollar against 10 major currencies. Weights are based on relative importance in world financial markets. P = preliminary.

Information contact: Tim Baxter (202) 219-0718.

**Table 26.—Trade Balance**

	Fiscal year <sup>1/</sup>								Feb
	1986	1987	1988	1989	1990	1991	1992	1993 F	1993
	\$ million								
<b>Exports</b>									
Agricultural	26,312	27,876	35,318	39,590	40,220	37,609	42,417	42,500	3,818
Nonagricultural	179,291	202,911	258,656	301,269	326,059	356,882	377,278	—	30,522
Total <sup>2/</sup>	205,603	230,787	293,972	340,859	366,279	394,291	419,695	—	34,340
<b>Imports</b>									
Agricultural	20,884	20,650	21,014	21,476	22,560	22,588	24,323	24,500	1,950
Nonagricultural	342,846	367,374	409,138	441,075	458,101	483,720	487,554	—	39,237
Total <sup>3/</sup>	363,730	388,024	430,152	462,551	480,661	486,308	511,877	—	41,187
<b>Trade balance</b>									
Agricultural	5,428	7,226	14,302	18,114	17,660	15,021	18,094	18,000	1,868
Nonagricultural	-163,555	-164,463	-150,482	-139,806	-132,042	-107,038	-110,276	—	-8,715
Total	-158,127	-157,237	-136,180	-121,692	-114,382	-92,017	-92,182	—	-6,847

<sup>1/</sup> Fiscal years begin October 1 & end September 30. Fiscal year 1992 began Oct. 1, 1991 & ended Sept. 30, 1992. <sup>2/</sup> Domestic exports including Department of Defense shipments (F.A.S. value). <sup>3/</sup> Imports for consumption (customs value). F = forecast. — = not available.

Information contact: Stephen MacDonald (202) 219-0822.



Table 27.—U.S. Agricultural Exports &amp; Imports

	Fiscal year*			Feb	Fiscal year*			Feb
	1991	1992	1993 F	1993	1991	1992	1993 F	1993
	1,000 units				\$ million			
EXPORTS								
Animals, live (no.) 1/	1,235	1,477	—	75	548	567	—	22
Meats & preps., excl. poultry (mt)	936	1,108	2/ 1,000	79	2,773	3,236	—	234
Dairy products (mt) 1/	44	172	—	18	293	638	600	58
Poultry meats (mt)	628	795	800	68	737	915	—	71
Fats, oils, & greases (mt)	1,169	1,392	1,500	119	419	498	—	46
Hides & skins incl. furskins	—	—	—	—	1,451	1,337	—	91
Cattle hides, whole (no.) 1/	21,548	20,822	—	1,256	1,191	1,107	—	71
Mink pelts (no.) 1/	3,941	3,160	—	429	74	62	—	4
Grains & feeds (mt)	94,583	100,744	—	9,428	12,175	13,858	3/ 14,000	1,278
Wheat (mt)	26,792	34,287	35,500	3,227	2,867	4,318	4/ 4,800	428
Wheat flour (mt)	987	816	900	153	191	165	—	27
Rice (mt)	2,395	2,279	2,100	238	747	757	700	77
Feed grains, incl. products (mt)	52,353	50,648	52,500	4,575	5,790	5,793	5,200	467
Feeds & fodders (mt)	10,943	11,267	5/ 11,800	1,090	1,882	2,019	—	198
Other grain products (mt)	1,113	1,449	—	143	697	807	—	83
Fruits, nuts, & preps. (mt)	2,849	3,505	—	284	3,038	3,514	—	246
Fruit juices incl.								
froz. (1,000 hectoliters) 1/	6,311	7,767	—	587	338	427	—	32
Vegetables & preps. (mt)	2,590	2,704	—	199	2,597	2,790	—	242
Tobacco, unmanufactured (mt)	239	248	—	24	1,533	1,568	1,600	130
Cotton, excl. linters (mt)	1,565	1,494	1,400	107	2,605	2,183	1,800	141
Seeds (mt)	514	701	—	51	817	859	700	67
Sugar, cane or beet (mt)	589	492	—	29	219	154	—	9
Oilseeds & products (mt)	22,295	28,642	—	3,731	5,643	7,158	7,100	900
Oilseeds (mt)	15,615	19,970	—	2,891	3,807	4,743	—	672
Soybeans (mt)	15,139	19,247	19,800	2,851	3,465	4,311	4,300	642
Protein meal (mt)	5,628	7,022	—	659	1,113	1,431	—	128
Vegetable oils (mt)	1,051	1,650	—	180	723	982	—	100
Essential oils (mt)	13	13	—	1	183	184	—	17
Other	499	490	—	8	2,441	2,733	—	234
Total	128,513	142,498	148,000	14,144	37,609	42,417	42,500	3,818
IMPORTS								
Animals, live (no.) 1/	3,168	2,830	—	288	1,131	1,275	1,400	135
Meats & preps., excl. poultry (mt)	1,191	1,134	—	80	3,018	2,684	—	190
Beef & veal (mt)	811	813	800	54	2,025	1,933	1,900	125
Pork (mt)	322	263	280	23	865	625	600	55
Dairy products (mt) 1/	231	232	—	12	767	816	900	47
Poultry & products 1/	—	—	—	—	119	132	—	7
Fats, oils, & greases (mt)	33	46	—	3	19	26	—	3
Hides & skins, incl. furskins 1/	—	—	—	—	153	185	—	17
Wool, unmanufactured (mt)	50	54	—	5	175	167	—	16
Grains & feeds (mt)	4,189	5,448	5,100	338	1,282	1,548	1,600	114
Fruits, nuts, & preps.,								
excl. juices (mt)	5,650	5,883	6,100	546	2,741	2,919	—	267
Bananas & plantains (mt)	3,399	3,626	4,000	286	993	1,083	1,100	84
Fruit juices (1,000 hectoliters) 1/	27,948	26,049	24,000	1,678	737	871	—	40
Vegetables & preps. (mt)	2,416	2,171	—	330	2,183	2,125	2,400	255
Tobacco, unmanufactured (mt)	215	364	180	30	698	1,299	900	98
Cotton, unmanufactured (mt)	18	11	—	1	16	10	—	1
Seeds (mt)	169	174	180	20	173	214	200	20
Nursery stock & cut flowers 1/	—	—	—	—	538	578	—	62
Sugar, cane or beet (mt)	1,785	1,823	—	116	717	633	—	37
Oilseeds & products (mt)	2,077	2,330	—	190	959	1,124	1,300	90
Oilseeds (mt)	445	429	—	37	151	135	—	12
Protein meal (mt)	412	629	—	42	57	84	—	6
Vegetable oils (mt)	1,220	1,273	—	111	750	904	—	72
Beverages excl. fruit								
juices (1,000 hectoliters) 1/	12,987	13,739	—	964	1,858	2,044	—	118
Coffee, tea, cocoa, spices	2,045	2,391	2,320	187	3,294	3,415	—	256
Coffee, incl. products (mt)	1,116	1,330	1,300	103	1,831	1,798	1,800	139
Cocoa beans & products (mt)	700	773	750	57	1,019	1,122	1,100	77
Rubber & allied gums (mt)	792	920	950	81	664	756	800	68
Other	—	—	—	—	1,348	1,503	—	110
Total	—	—	—	—	22,588	24,323	24,500	1,950

\*Fiscal years begin Oct. 1 & end Sept. 30. Fiscal year 1992 began Oct. 1, 1991 & ended Sept. 30, 1992. 1/ Not included in total volume and also other dairy products for 1991 & 1992. 2/ Forecasts for footnoted items 2/-6/ are based on slightly different groups of commodities. Fiscal 1991 exports of categories used in the 1991 forecasts were 2/ 678,000 m. tons. 3/ 16,014 million. 4/ 4,426 million i.e. includes flour. 5/ 11,065 million m. tons. 6/ Less than \$500. F = forecast — = not available.

Information contact: Stephen MacDonald (202) 219-0822

Table 28.—U.S. Agricultural Exports by Region

Region & country	Fiscal year*			Feb	Change from year* earlier			Feb
	1991	1992	1993 F	1993	1991	1992	1993 F	1993
	\$ million			Percent				
WESTERN EUROPE	7,312	7,740	8,200	897	-1	6	6	7
European Community (EC-12)	6,776	7,194	7,700	866	-1	6	7	10
Belgium-Luxembourg	464	461	—	54	9	-1	—	3
France	571	618	—	75	22	-8	—	20
Germany	1,135	1,091	—	131	2	-4	—	20
Italy	675	684	—	74	-4	1	—	-20
Netherlands	1,561	1,813	—	245	-5	16	—	10
United Kingdom	683	882	—	85	16	0	—	9
Portugal	251	240	—	27	-26	-4	—	-10
Spain, incl. Canary Islands	855	951	—	120	-12	11	—	33
Other Western Europe	536	546	500	31	9	2	0	-38
Switzerland	194	187	—	11	13	-4	—	-39
EASTERN EUROPE	306	222	300	37	-36	-28	50	229
Poland	46	49	—	13	-54	6	—	138
Yugoslavia	74	50	—	9	-43	-32	—	233
Romania	82	76	—	11	-81	-8	—	3,347
Former USSR	1,758	2,691	1,900	58	-42	53	-30	-79
ASIA	16,094	17,782	17,700	1,504	-11	10	-1	-10
West Asia (Mideast)	1,430	1,770	2,000	223	-28	24	11	31
Turkey	224	344	—	59	-14	64	—	86
Iraq	0	0	0	0	-100	0	0	-100
Israel, incl. Gaza & W. Bank	287	346	—	34	1	20	—	-19
Saudi Arabia	536	549	500	50	7	2	0	28
South Asia	375	536	—	45	-48	43	—	-38
Bangladesh	67	123	—	8	-44	83	—	612
India	94	117	—	34	-19	24	—	125
Pakistan	144	226	200	1	-63	57	0	-98
China	668	691	400	67	-27	3	-43	-14
Japan	7,736	8,383	8,100	697	-5	8	-4	-11
Southeast Asia	1,239	1,470	—	151	5	19	—	13
Indonesia	279	353	—	30	1	27	—	-12
Philippines	373	443	500	28	6	19	25	-6
Other East Asia	4,646	4,934	5,100	322	-11	6	4	-27
Taiwan	1,739	1,916	1,900	119	-4	10	0	-22
Korea, Rep.	2,159	2,200	2,300	136	-20	2	5	-37
Hong Kong	745	817	900	60	9	10	13	-13
AFRICA	1,882	2,304	2,500	303	-6	22	9	179
North Africa	1,386	1,412	1,600	188	-9	2	14	128
Morocco	129	156	—	45	-21	21	—	1,354
Algeria	477	478	500	45	-3	0	0	90
Egypt	692	709	600	88	-9	2	-14	66
Sub-Saharan	496	892	800	115	2	80	-11	335
Nigeria	44	31	—	12	38	-30	—	1,038
Rep. S. Africa	74	328	—	64	-9	345	—	2,788
LATIN AMERICA & CARIBBEAN	5,499	6,438	6,700	591	7	17	5	6
Brazil	271	143	100	21	158	-47	0	350
Caribbean Islands	1,010	970	—	79	0	-4	—	-7
Central America	498	587	—	55	8	18	—	16
Colombia	124	142	—	18	-16	14	—	83
Mexico	2,885	3,676	4,100	324	8	27	11	-4
Peru	150	179	—	8	-20	19	—	-41
Venezuela	307	394	300	58	-11	28	-25	73
CANADA	4,409	4,812	4,800	397	19	9	0	12
OCEANIA	349	428	400	31	10	23	0	12
TOTAL	37,609	42,417	42,500	3,818	-6	13	0	22
Developed countries	20,106	21,969	22,300	2,114	2	9	11	3
Developing countries	16,831	19,758	—	1,631	-14	17	—	-6
Other countries	672	691	—	73	-26	3	—	-6

\*Fiscal years begin Oct. 1 & end Sept. 30. Fiscal year 1992 began Oct. 1, 1991 & ended Sept. 30, 1992. F = forecast. — = not available.  
 Note: Adjusted for transshipments through Canada.

Information contact: Stephen MacDonald (202) 219-0822.



## Farm Income

**Table 29.—Farm Income Statistics**

New data are being incorporated. The table will appear in the July issue.  
Information contact: James Johnson (202) 219-0800.

**Table 30.—Balance Sheet of the U.S. Farming Sector**

	Calendar year 1/										
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992F	1993 F
	\$ billion										
<b>Assets</b>											
Real estate	763.4	661.8	586.2	542.3	578.9	595.5	615.5	627.5	623.4	623	620 to 630
Non-real estate	189.8	195.2	188.5	182.1	193.7	205.4	213.4	219.0	218.5	223	218 to 228
Livestock & poultry	49.5	49.5	48.3	47.8	58.0	62.2	66.2	70.9	68.4	72	71 to 75
Machinery & motor vehicles	85.8	85.0	82.9	81.5	80.0	81.0	84.5	84.3	83.7	83	81 to 85
Crops stored 2/	23.6	26.1	22.9	18.3	17.5	23.3	23.4	22.8	23.8	23	21 to 25
Purchased inputs	—	2.0	1.2	2.1	3.2	3.5	2.6	2.8	2.5	3	2 to 4
Financial assets	30.9	32.6	33.3	34.5	35.1	35.4	36.8	38.3	40.3	42	41 to 45
Total farm assets	943.2	857.0	772.7	724.4	772.6	800.9	828.9	846.5	842.4	846	845 to 855
<b>Liabilities</b>											
Real estate debt 3/	103.2	108.7	100.1	90.4	82.4	77.6	75.4	73.7	74.4	76	73 to 77
Non-real estate debt 4/	87.9	87.1	77.5	66.6	62.0	61.7	61.8	63.1	64.3	65	64 to 68
Total farm debt	191.1	193.8	177.6	157.0	144.4	139.4	137.2	136.8	138.8	140	138 to 144
Total farm equity	752.2	663.3	595.1	567.5	628.2	661.8	691.8	709.8	703.1	707	705 to 715
	Percent										
<b>Selected ratios</b>											
Debt-to-assets	20.3	22.6	23.0	21.7	18.7	17.4	16.6	16.2	16.5	17	16 to 17
Debt-to-equity	25.5	29.2	29.8	27.7	23.0	21.1	19.8	19.3	19.7	20	19 to 21
Debt-to-net cash income	498	518	377	328	259	240	233	223	2,395	2,300	2,200 to 2,400

1/ As of Dec. 31. 2/ Non-CCC crops held on farms plus value above loan rates for crops held under CCC. 3/ Excludes debt on operator dwellings, but includes CCC storage and drying facilities loans. 4/ Excludes debt for nonfarm purposes. F = forecast.

Information contacts: Ken Erickson or Jim Ryan (202) 219-0798.

Table 31.—Cash Receipts From Farm Marketings, by State

Region & State	Livestock & products				Crops 1/				Total 1/			
	1991	1992	Jan 1993	Feb. 1993	1991	1992	Jan 1993	Feb. 1993	1991	1992	Jan 1993	Feb. 1993
	\$ million 2/											
NORTH ATLANTIC												
Maine	252	244	28	24	192	195	19	19	445	439	45	43
New Hampshire	63	63	6	6	80	76	5	6	143	139	11	11
Vermont	368	400	30	26	66	66	3	3	433	466	33	29
Massachusetts	121	121	11	10	355	342	20	12	476	463	30	23
Rhode Island	13	13	1	1	58	58	3	3	71	71	4	4
Connecticut	209	201	23	21	255	240	37	13	463	441	81	34
New York	1,782	1,885	146	130	1,087	1,077	58	56	2,868	2,963	204	185
New Jersey	197	196	16	15	464	476	19	17	660	673	35	32
Pennsylvania	2,470	2,549	193	187	1,033	1,050	111	89	3,503	3,599	304	276
NORTH CENTRAL												
Ohio	1,881	1,608	126	122	2,212	2,310	272	165	3,893	3,917	398	287
Indiana	1,893	1,731	158	135	2,582	2,696	417	210	4,475	4,428	573	345
Illinois	2,344	2,221	170	166	5,165	5,524	962	470	7,509	7,745	1,132	636
Michigan	1,288	1,291	106	91	1,793	1,947	185	126	3,081	3,239	290	217
Wisconsin	4,215	4,434	322	300	1,234	1,226	111	63	5,449	5,660	433	363
Minnesota	3,577	3,519	275	278	3,359	3,464	424	215	6,936	6,983	699	492
Iowa	5,721	5,350	448	565	4,458	4,843	730	317	10,179	10,192	1,178	883
Missouri	2,203	2,109	148	181	1,658	1,959	281	118	3,861	4,068	428	299
North Dakota	699	685	84	76	1,857	2,368	236	143	2,556	3,053	320	219
South Dakota	2,176	2,068	171	186	1,088	1,243	108	77	3,264	3,312	279	262
Nebraska	5,934	5,786	375	532	2,888	3,085	530	246	8,821	8,872	905	778
Kansas	4,802	4,954	337	366	2,133	2,424	244	118	6,935	7,379	581	485
SOUTHERN												
Delaware	438	453	42	32	181	175	8	9	620	628	49	41
Maryland	779	831	66	57	554	573	29	27	1,332	1,404	94	84
Virginia	1,363	1,433	87	94	732	728	47	31	2,095	2,161	133	125
West Virginia	253	252	18	16	77	79	7	5	330	331	26	21
North Carolina	2,808	2,635	215	210	2,318	2,318	87	64	4,924	4,854	302	274
South Carolina	549	519	37	33	677	627	32	22	1,225	1,147	69	55
Georgia	2,153	2,122	186	173	1,825	1,795	75	55	3,978	3,918	261	228
Florida	1,172	1,139	92	88	4,969	4,678	562	483	6,141	5,816	654	571
Kentucky	1,704	1,652	114	103	1,475	1,619	413	106	3,179	3,271	527	209
Tennessee	1,045	1,028	64	103	933	1,062	151	45	1,978	2,090	216	148
Alabama	2,219	2,111	180	156	759	790	50	35	2,978	2,901	210	191
Mississippi	1,275	1,318	112	104	1,147	1,265	149	60	2,422	2,583	261	164
Arkansas	2,680	2,621	216	208	1,631	1,945	212	73	4,311	4,565	427	280
Louisiana	821	820	40	42	1,172	1,291	150	58	1,793	1,911	190	101
Oklahoma	2,767	2,668	166	250	1,040	1,144	77	45	3,808	3,812	243	285
Texas	7,914	7,870	512	561	4,212	4,159	340	200	12,126	12,028	852	781
WESTERN												
Montana	790	766	67	73	741	830	80	62	1,531	1,596	147	134
Idaho	1,073	1,109	88	95	1,543	1,620	123	81	2,616	2,730	209	178
Wyoming	643	620	28	60	170	167	8	9	813	787	36	69
Colorado	2,664	2,694	270	241	1,097	1,086	114	63	3,761	3,779	384	304
New Mexico	1,019	968	77	89	482	469	29	19	1,501	1,437	107	107
Arizona	786	823	117	90	1,104	940	112	48	1,890	1,764	228	136
Utah	553	583	40	41	178	192	16	11	731	775	56	51
Nevada	187	187	17	18	89	74	8	7	278	260	23	25
Washington	1,290	1,364	118	101	2,657	2,932	222	185	3,947	4,296	338	285
Oregon	824	826	66	58	1,631	1,697	105	77	2,454	2,524	171	135
California	6,272	5,258	392	366	12,615	12,838	732	617	17,887	18,095	1,124	983
Alaska	6	6	0	0	20	20	1	1	27	27	2	2
Hawaii	91	91	7	7	508	495	40	36	597	586	47	43
UNITED STATES	86,746	85,996	6,577	6,886	80,550	84,280	8,752	5,016	167,292	170,278	15,329	11,902

1/ Sales of farm products include receipts from commodities placed under nonrecourse CCC loans, plus additional gains realized on redemptions during the period. 2/ Estimates as of end of current month. Totals may not add because of rounding.

Information contact: Roger Strickland (202) 219-0806. To receive current monthly cash receipts via mail or E-Mail contact Linda Farmer at (202) 219-0804.



Table 32.—Cash Receipts From Farming

	Annual						1992				1993	
	1987	1988	1989	1990	1991	1992 P	Feb	Oct	Nov	Dec	Jan	Feb
	\$ million											
<b>Farm marketings &amp; CCC loans*</b>	141,844	151,102	161,027	169,920	167,292	170,275	11,598	19,492	17,150	17,167	15,328	11,902
Livestock & products	75,993	79,438	84,148	89,921	88,745	85,998	6,717	7,738	7,721	7,984	6,577	6,886
Meat animals	44,478	46,492	48,857	51,911	51,093	48,988	4,063	4,538	4,431	4,808	3,582	4,222
Dairy products	17,727	17,841	19,396	20,210	18,114	19,709	1,487	1,668	1,591	1,631	1,539	1,367
Poultry & eggs	11,515	12,868	15,372	15,243	16,063	14,801	1,012	1,380	1,389	1,379	1,244	1,118
Other	2,274	2,437	2,524	2,557	2,476	2,497	182	174	311	168	212	179
Crops	85,851	71,663	78,879	79,999	80,547	84,280	4,881	11,753	9,429	9,184	8,751	5,016
Food grains	6,790	7,474	8,247	8,823	8,823	8,946	437	1,027	733	848	735	409
Feed crops	14,835	14,298	17,054	18,690	19,012	20,352	1,407	2,902	1,981	2,532	3,019	1,485
Cotton (lint & seed)	4,189	4,546	5,033	5,489	6,689	6,404	213	1,000	1,372	1,289	894	282
Tobacco	1,816	2,083	2,416	2,741	2,886	2,967	38	217	243	653	495	41
Oil-bearing crops	11,283	13,500	11,866	12,294	12,647	13,065	783	3,103	1,430	1,122	1,064	850
Vegetables & melons	9,898	9,788	11,534	11,455	11,293	11,235	684	1,171	610	561	812	660
Fruits & tree nuts	8,085	9,202	9,290	9,534	9,882	9,885	531	1,251	1,352	1,013	497	485
Other	10,176	10,772	11,435	12,284	12,614	12,426	766	1,082	1,728	1,365	835	823
Government payments	19,747	14,480	10,887	9,298	8,214	9,169	825	1,813	303	1,164	222	1,053
<b>Total</b>	<b>158,591</b>	<b>166,582</b>	<b>171,914</b>	<b>179,218</b>	<b>175,506</b>	<b>179,338</b>	<b>12,423</b>	<b>21,305</b>	<b>17,453</b>	<b>18,331</b>	<b>15,550</b>	<b>12,955</b>

\* Sales of farm products include receipts from commodities placed under nonrecourse CCC loans, plus additional gains realized on redemptions during the period. P = preliminary.  
 Information contact: Roger Strickland (202) 219-0808. To receive current monthly cash receipts via mail or E-Mail contact Linda Farmer at (202) 219-0804.

Table 33.—Farm Production Expenses

	Calendar year									
	1984	1985	1986	1987	1988	1989	1990	1991	1992F	1993F
	\$ million									
<b>Feed purchased</b>	<b>19,383</b>	<b>16,949</b>	<b>17,472</b>	<b>17,463</b>	<b>20,393</b>	<b>21,002</b>	<b>20,706</b>	<b>19,800</b>	<b>20,000</b>	<b>18,000 to 22,000</b>
Livestock & poultry purchased	9,487	9,164	9,756	11,842	12,764	13,138	14,832	14,358	14,000	12,000 to 16,000
Seed purchased	3,388	3,128	3,188	3,259	3,359	3,558	3,576	3,975	4,000	3,000 to 5,000
<b>Farm-origin inputs</b>	<b>32,258</b>	<b>29,281</b>	<b>30,418</b>	<b>32,564</b>	<b>36,515</b>	<b>37,698</b>	<b>39,114</b>	<b>38,133</b>	<b>38,000</b>	<b>36,000 to 40,000</b>
Fertilizer & lime	8,361	7,513	6,820	6,453	6,947	7,249	7,135	7,419	7,000	6,000 to 9,000
Fuels & oils	7,298	6,436	5,310	4,957	4,903	4,798	5,730	5,472	5,000	4,000 to 7,000
Electricity	2,060	1,878	1,795	2,156	2,289	2,543	2,480	2,483	2,000	1,000 to 3,000
Pesticides	4,688	4,334	4,324	4,512	4,577	6,437	5,730	6,313	6,000	6,000 to 8,000
<b>Manufactured inputs</b>	<b>22,404</b>	<b>20,160</b>	<b>18,249</b>	<b>18,077</b>	<b>18,718</b>	<b>20,027</b>	<b>21,063</b>	<b>21,687</b>	<b>21,000</b>	<b>20,000 to 24,000</b>
<b>Short-term interest</b>	<b>10,398</b>	<b>8,735</b>	<b>7,367</b>	<b>6,767</b>	<b>6,797</b>	<b>6,910</b>	<b>6,911</b>	<b>6,815</b>	<b>6,000</b>	<b>5,000 to 8,000</b>
Real estate interest 1/	10,733	9,878	9,131	8,187	7,885	7,781	7,607	7,319	7,000	6,000 to 8,000
<b>Total interest charges</b>	<b>21,129</b>	<b>18,613</b>	<b>16,498</b>	<b>14,954</b>	<b>14,682</b>	<b>14,691</b>	<b>14,518</b>	<b>13,934</b>	<b>14,000</b>	<b>12,000 to 16,000</b>
<b>Repair &amp; maintenance 1/</b>	<b>6,416</b>	<b>6,370</b>	<b>6,426</b>	<b>6,760</b>	<b>6,858</b>	<b>7,340</b>	<b>7,347</b>	<b>7,234</b>	<b>7,000</b>	<b>7,000 to 9,000</b>
Contract & hired labor	9,427	10,008	9,484	9,976	10,441	11,110	12,541	12,595	13,000	11,000 to 15,000
Machine hire & custom work	2,566	2,354	2,099	2,105	2,354	2,682	2,633	2,722	3,000	2,000 to 4,000
Marketing, storage, & transportation	4,012	4,127	3,652	4,078	3,460	4,080	4,046	4,532	5,000	4,000 to 6,000
Misc. operating expenses 1/ 2/	10,331	10,010	9,759	11,171	11,791	12,522	12,384	13,256	13,000	11,000 to 15,000
<b>Other operating expenses</b>	<b>32,751</b>	<b>32,868</b>	<b>31,420</b>	<b>34,089</b>	<b>34,894</b>	<b>37,734</b>	<b>38,631</b>	<b>40,339</b>	<b>41,000</b>	<b>39,000 to 44,000</b>
<b>Capital consumption 1/</b>	<b>20,847</b>	<b>19,299</b>	<b>17,788</b>	<b>17,092</b>	<b>17,344</b>	<b>17,780</b>	<b>17,494</b>	<b>17,352</b>	<b>17,000</b>	<b>16,000 to 20,000</b>
Taxes 1/	4,337	4,542	4,612	4,853	4,848	5,127	5,623	5,980	6,000	5,000 to 7,000
Net rent to nonoperator landlord	8,150	7,690	6,099	7,124	7,290	8,187	8,334	7,484	8,000	7,000 to 9,000
<b>Other overhead expenses</b>	<b>33,334</b>	<b>31,531</b>	<b>28,499</b>	<b>29,069</b>	<b>29,482</b>	<b>31,094</b>	<b>31,451</b>	<b>30,796</b>	<b>31,000</b>	<b>30,000 to 33,000</b>
<b>Total production expenses</b>	<b>141,673</b>	<b>132,433</b>	<b>125,084</b>	<b>128,772</b>	<b>134,285</b>	<b>141,244</b>	<b>145,077</b>	<b>144,889</b>	<b>145,000</b>	<b>143,000 to 149,000</b>

1/ Includes operator dwellings. 2/ Beginning in 1982, miscellaneous operating expenses include other livestock purchases, dairy assessments & feeding fees paid by nonoperators. Totals may not add because of rounding. F = forecast.

Information contacts: Chris McGath (202) 219-0804, Robert McElroy (202) 219-0800.

Table 34. --CCC Net Outlays by Commodity &amp; Function

COMMODITY/PROGRAM	Fiscal year									
	1985	1986	1987	1988	1989	1990	1991	1992	1993 E	1994 E
	\$ million									
<b>COMMODITY/PROGRAM</b>										
Feed grains										
Corn	4,403	10,524	12,348	8,227	2,863	2,450	2,367	2,105	5,250	3,180
Grain sorghum	483	1,185	1,203	764	467	361	243	180	423	274
Barley	336	471	394	57	45	-93	71	174	185	103
Oats	2	26	17	-2	1	-5	12	32	17	6
Corn & oat products	7	5	7	7	8	8	9	9	8	10
Total feed grains	5,211	12,211	13,967	9,053	3,384	2,721	2,722	2,510	5,683	3,573
Wheat	4,691	3,440	2,838	678	53	806	2,958	1,719	2,274	1,847
Rice	990	947	906	128	631	867	867	715	889	741
Upland cotton	1,553	2,142	1,786	666	1,461	-79	382	1,443	2,436	2,317
Tobacco	455	253	-346	-453	-367	-307	-143	29	-2	-13
Dairy	2,085	2,337	1,166	1,295	679	505	839	232	125	230
Soybeans	711	1,597	-476	-1,676	-86	5	40	-29	41	-40
Peanuts	12	32	8	7	13	1	46	41	33	1
Sugar	184	214	-65	-246	-25	15	-20	-19	-28	-30
Honey	81	89	73	100	42	47	19	17	17	12
Wool	109	123	152	1/ 5	93	104	172	191	183	191
Operating expense 3/	346	457	535	614	620	618	625	6	7	6
Interest expenditure	1,435	1,411	1,219	425	98	632	745	532	195	164
Export programs 4/	134	102	278	200	-102	-34	733	1,455	3,066	1,845
1989/92 Disaster/Tree/										
livestock assistance	0	0	0	0	3,919	2/ 181	121	1,054	1,226	0
Other	-314	486	371	1,665	110	609	2	-158	789	1,293
Total	17,683	25,841	22,408	12,461	10,523	8,471	10,110	9,738	17,194	12,137
<b>FUNCTION</b>										
Price-support loans (net)	6,272	13,628	12,199	4,579	-926	-399	418	584	2,183	785
Direct payments 5/										
Deficiency	6,302	6,166	4,833	3,971	5,798	4,178	6,224	5,491	8,813	7,009
Diversion	1,525	64	382	8	-1	0	0	0	0	0
Dairy termination	0	489	587	260	168	189	96	2	0	0
Loan Deficiency	0	27	60	0	42	3	21	214	390	438
Other	0	0	0	0	0	0	0	140	200	175
Disaster	0	0	0	6	4	0	0	0	0	0
Total direct payments	7,827	6,746	5,862	4,245	6,011	4,370	6,341	5,847	9,403	7,622
1988-92 crop disaster	0	0	0	0	3,386	2/ 5	6	960	1,137	0
Emergency livestock/tree/										
forage assistance	0	0	0	31	533	156	115	94	89	0
Purchases (net)	1,331	1,670	-479	-1,131	116	-48	646	321	335	298
Producer storage										
payments	329	485	832	658	174	185	1	14	19	67
Processing, storage,										
& transportation	657	1,013	1,659	1,113	659	317	394	185	135	128
Operating expense 3/	346	457	535	614	620	618	625	6	7	6
Interest expenditure	1,435	1,411	1,219	425	98	632	745	532	195	164
Export programs 4/	134	102	278	200	-102	-34	733	1,455	3,066	1,845
Other	-648	329	305	1,727	-46	669	86	-260	565	1,222
Total	17,683	25,841	22,408	12,461	10,523	8,471	10,110	9,730	17,134	12,137

1/ Fiscal 1988 wool & mohair program outlays were \$130,635,000 but include a one-time advance appropriation of \$126,108,000, which was recorded as a wool program receipt by Treasury. 2/ Approximately \$1.5 billion in benefits to farmers under the Disaster Assistance Act of 1989 were paid in generic certificates & were not recorded directly as disaster assistance outlays. 3/ Does not include CCC Transfers to General Sales Manager. 4/ Includes Export Guarantee Program, Direct Export Credit Program, CCC Transfers to the General Sales Manager, Market Promotion Program, starting in fiscal 1991 & starting in fiscal 1992 Export Guarantee Program - Credit Reform, Export Enhancement Program, & Dairy Export Incentive Program. 5/ Includes cash payments only. Excludes payment-in-kind in fiscal 83-85 & generic certificates in fiscal 86-89. E = Estimated in the fiscal 1994 Budget which was released April 8, 1993 based on November 1992 supply & demand estimates. Minus (-) indicates a net receipt (excess of repayments or other receipts over gross outlays of funds).

Information contact: Richard Pazdaleki (202) 720-5148.



## Food Expenditures

**Table 35.—Food Expenditures**

	Annual			1993			1993 year-to-date		
	1990	1991	1992	Feb	Mar P	Apr P	Feb	Mar P	Apr P
\$ billion									
Sales 1/									
Off-premise use 2/	298.1	310.9	319.0	24.5	26.5	26.6	50.6	77.1	103.7
Meals & snacks 3/	225.3	232.6	242.1	18.4	20.6	20.9	37.6	58.2	79.1
1992 \$ billion									
Sales 1/									
Off-premise use 2/	308.3	313.2	318.9	24.1	26.0	26.0	49.8	75.8	101.8
Meals & snacks 3/	237.6	237.3	242.0	18.2	20.4	20.6	37.1	57.5	78.1
Percent change from year earlier (\$ bil.)									
Sales 1/									
Off-premise use 2/	8.9	4.3	2.6	-0.4	3.5	2.4	0.9	1.8	1.9
Meals & snacks 3/	7.2	3.3	4.1	-2.0	2.5	6.0	0.3	1.1	2.3
Percent change from year earlier (1992 \$ bil.)									
Sales 1/									
Off-premise use 2/	2.3	1.6	1.8	-2.0	2.1	0.5	-0.9	0.1	0.2
Meals & snacks 3/	2.4	-0.1	2.0	-4.0	0.8	4.2	-1.5	-0.7	0.5

1/ Food only (excludes alcoholic beverages). Not seasonally adjusted. 2/ Excludes donations & home production. 3/ Excludes donations, child nutrition subsidies, & meals furnished to employees, patients, & inmates. P = preliminary.

NOTE: This table differs from Personal Consumption Expenditures (PCE), table 2, for several reasons: (1) this series includes only food nonalcoholic beverages & pet food which are included in PCE; (2) this series is not seasonally adjusted, whereas PCE is seasonally adjusted at annual rates; (3) this series reports sales only, but PCE includes food produced & consumed on farms & food furnished to employees; (4) this series includes all sales of meals & snacks. PCE includes only purchases using personal funds, excluding business travel & entertainment. For a more complete discussion of the differences, see "Developing an Integrated Information System for the Food Sector," Agr. Econ. Rpt. No. 575, Aug 1987.

Information contact: Alden Manchester (202) 219-0880.

## Transportation

**Table 36.—Rail Rates; Grain & Fruit-Vegetable Shipments**

	Annual			1992				1993		
	1990	1991	1992	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Rail freight rate index 1/ (Dec. 1984=100)										
All products	107.5	109.3	110.0	109.8	110.1	110.2 P	110.3	110.4 P	110.4 P	110.6 P
Farm products	110.4	111.4	111.1	110.7	112.4	112.4 P	113.7	112.9 P	113.0 P	113.5 P
Grain	110.1	111.2	111.4	110.8	113.7	113.1 P	114.8	113.8 P	113.9 P	114.5 P
Food products	105.4	108.1	108.7	109.4	108.1	108.1 P	109.0	108.7 P	108.7 P	108.9 P
Grain shipments										
Rail carloadings (1,000 cars) 2/	27.6	26.6	27.5	29.9	30.8 P	31.5 P	29.7 P	29.6 P	30.7 P	30.1 P
Barge shipments (mil. ton) 3/	3.8	3.3	3.4	3.4	2.6	3.3	2.9	2.0	1.7	3.0
Fresh fruit & vegetable shipments 4/ 5/										
Piggy back (mil. cwt)	1.8	1.5	1.6	1.5	1.3	1.4	1.4	1.4	1.4	1.6
Rail (mil. cwt)	2.3	2.1	2.6	2.7	2.0	2.4	3.0	2.5	2.2	2.8
Truck (mil. cwt)	41.5	41.9	44.0	44.8	42.2	39.4	41.1	40.8	39.1	44.0
Cost of operating trucks hauling produce 4/										
Fleet operation (cts./mile)	130.5	126.5	124.1	122.8	125.0	124.8	125.1	127.0	127.0	127.0

1/ Department of Labor, Bureau of Labor Statistics. 2/ Weekly average; from Association of American Railroads. 3/ Shipments on Illinois & Mississippi waterways. U.S. Corps of Engineers. 4/ Agricultural Marketing Service, USDA. 5/ Preliminary data for 1993. P = preliminary. — = not available.

Information contact: T.Q. Hutchinson (202) 219-0840.

## Indicators of Farm Productivity

Table 37.—Indexes of Farm Production, Input Use & Productivity <sup>1/</sup>

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 2/
	1977=100									
Farm output	116	96	112	118	111	110	102	114	119	120
All livestock products 3/	107	109	107	110	110	113	116	116	118	119
Meat animals	101	104	101	102	100	102	105	105	104	104
Dairy products	110	114	110	117	116	118	118	117	120	121
Poultry & eggs	119	120	123	128	133	144	148	153	162	168
All crops 4/	117	88	111	118	109	108	92	107	114	111
Feed grains	122	87	116	134	123	106	73	108	112	106
Hay & forage	109	100	107	108	106	102	89	101	102	103
Food grains	138	117	129	121	107	107	98	107	136	104
Sugar crops	96	93	95	97	106	111	105	105	107	112
Cotton	85	55	91	94	89	103	107	86	109	122
Tobacco	104	75	80	81	63	82	72	71	84	87
Oil crops	121	91	106	117	110	108	89	106	107	114
Cropland used for crops	101	88	99	98	94	88	87	90	90	89
Crop production per acre	118	100	112	120	116	123	106	119	127	125
Farm input 5/	98	96	95	91	89	89	87	87	88	—
Farm real estate	102	101	99	97	96	95	94	93	93	—
Mechanical power & machinery	89	88	85	80	77	74	74	73	71	—
Agricultural chemicals	118	102	120	115	109	111	112	119	122	—
Feed, seed, & livestock purchases	107	103	103	102	109	116	111	113	113	—
Farm output per unit of input	119	100	118	129	124	124	116	130	135	—
Output per hour of labor										
Farm 6/	125	99	121	139	139	142	135	147	142	—
Nonfarm 7/	99	102	105	108	108	109	111	112	111	—

1/ For historical data & indexes, see Economic Indicators of the Farm Sector: Production & Efficiency Statistics, 1986, ECIFS 5-8. 2/ Preliminary indexes for 1991 based on Crop Production: 1991 Summary, released in January 1992, & unpublished data from the Agricultural Statistics Board, NASS. 3/ Gross livestock production includes minor livestock products not included in the separate groups shown. It cannot be added to gross crop production to compute farm output. 4/ Gross crop production includes some miscellaneous crops not in the separate groups shown. It cannot be added to gross livestock production to compute farm output. 5/ Includes other items not included in the separate groups shown. 6/ Economic Research Service. 7/ Bureau of Labor Statistics. — = not available

Information contact: Eldon Ball (202) 219-0432



## Food Supply &amp; Use

Table 38.—Per Capita Consumption of Major Food Commodities <sup>1/</sup>

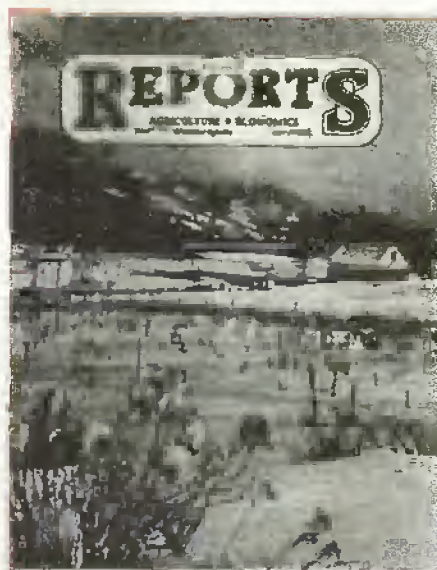
Commodity	1984	1985	1986	1987	1988	1989	1990	1991
Pounds								
Red meats <sup>2/3/4/</sup>	123.7	124.9	122.2	117.4	119.5	115.9	112.4	111.9
Beef	73.9	74.6	74.4	69.6	68.6	65.4	64.0	63.1
Veal	1.5	1.5	1.6	1.3	1.1	1.0	0.9	0.8
Lamb & mutton	1.1	1.1	1.0	1.0	1.0	1.1	1.1	1.1
Pork	47.2	47.7	45.2	45.6	48.8	48.4	46.4	46.9
Poultry <sup>2/3/4/</sup>	43.7	45.2	47.1	50.7	51.7	53.6	55.9	58.0
Chicken	35.0	36.1	37.0	39.1	39.3	40.5	42.1	43.9
Turkey	8.7	9.1	10.2	11.8	12.4	13.1	13.8	14.1
Fish & shellfish <sup>3/</sup>	14.1	15.0	15.4	16.1	15.1	15.6	15.0	14.8
Eggs <sup>4/</sup>	33.3	32.7	32.5	32.5	31.5	30.2	29.9	29.8
Dairy products								
Cheese (excluding cottage) <sup>2/5/</sup>	21.5	22.5	23.1	24.1	23.7	23.8	24.7	25.2
American	11.9	12.2	12.1	12.4	11.5	11.0	11.2	11.2
Italian	5.8	6.5	7.0	7.6	8.1	8.5	9.0	9.4
Other cheese <sup>6/</sup>	3.9	3.9	4.0	4.1	4.1	4.3	4.6	4.6
Cottage cheese	4.1	4.1	4.1	3.9	3.9	3.8	3.4	3.3
Beverage milks <sup>2/</sup>	227.3	229.7	228.6	228.5	222.4	224.3	221.7	221.5
Fluid whole milk <sup>7/</sup>	126.9	123.4	116.5	111.9	105.7	97.6	90.4	87.5
Fluid lowfat milk <sup>8/</sup>	88.9	93.7	98.6	100.6	100.5	106.5	108.4	110.1
Fluid skim milk	11.8	12.6	13.5	14.0	16.1	20.2	22.9	23.8
Fluid cream products <sup>9/</sup>	6.3	6.7	7.0	7.1	7.1	7.3	7.1	7.0
Yogurt (excluding frozen)	3.7	4.1	4.4	4.4	4.7	4.3	4.1	4.3
Ice cream	18.2	18.1	18.4	18.4	17.3	16.1	15.8	16.4
Ice milk	7.0	6.9	7.2	7.4	8.0	8.4	7.7	7.3
Frozen yogurt	—	—	—	—	—	2.0	2.8	3.5
All dairy products, milk equivalent, milkfat basis <sup>10/</sup>	582.0	593.8	591.5	601.3	582.9	565.2	571.3	565.3
Fats & oils — Total fat content	58.9	64.3	64.4	62.9	63.0	60.4	62.2	63.5
Butter & margarine (product weight)	15.3	15.7	16.0	15.2	14.8	14.6	15.3	14.8
Shortening	21.3	22.9	22.1	21.4	21.5	21.5	22.2	22.1
Lard & edible tallow (direct use)	3.8	3.7	3.5	2.7	2.6	2.1	2.5	3.1
Salad & cooking oils	19.9	23.5	24.2	25.4	25.8	24.0	24.2	25.2
Fresh fruits <sup>11/</sup>	88.9	86.8	93.1	97.5	97.4	98.8	92.6	90.6
Canned fruit <sup>12/</sup>	12.3	12.7	12.9	13.6	13.2	13.3	13.4	12.3
Dried fruit	2.6	2.9	2.9	2.7	3.0	3.3	3.2	3.6
Frozen fruit	3.0	3.3	3.6	3.9	3.8	4.6	4.3	3.9
Frozen citrus juices <sup>13/</sup>	35.7	40.5	43.2	40.2	40.1	34.3	27.2	—
Vegetables <sup>11/</sup>								
Fresh	100.6	100.7	99.3	105.8	109.7	112.9	110.9	106.0
Canning	90.9	87.8	87.9	87.6	83.5	90.7	93.4	94.3
Freezing	17.5	17.1	15.8	16.8	18.3	17.8	18.3	19.3
Potatoes, all <sup>11/</sup>	121.9	122.5	125.8	125.8	122.3	127.4	127.8	130.6
Sweetpotatoes <sup>11/</sup>	4.9	5.4	4.4	4.4	4.1	4.1	4.6	4.0
Peanuts (shelled)	6.1	6.3	6.4	6.4	8.9	7.0	6.0	6.5
Tree nuts (shelled)	2.3	2.3	2.3	2.2	2.3	2.3	2.5	2.5
Flour & cereal products <sup>14/</sup>	150.4	157.5	163.7	172.5	174.3	175.3	183.0	184.6
Wheat flour	119.2	124.7	125.7	129.9	130.0	129.2	135.7	135.9
Rice (milled basis)	8.5	9.0	11.6	14.0	14.3	15.2	16.2	16.8
Caloric sweeteners <sup>15/</sup>	127.0	131.3	129.6	133.7	135.1	137.3	140.7	141.7
Coffee (green bean equiv.)	10.2	10.5	10.5	10.2	9.8	10.1	10.3	10.5
Cocoa (chocolate liquor equiv.)	3.4	3.7	3.8	3.8	3.8	4.0	4.3	4.6

<sup>1/</sup> In pounds, retail weight unless otherwise stated. Consumption normally represents total supply minus exports, nonfood use, & ending stocks. Calendar-year data except fresh citrus fruits, peanuts, tree nuts, & rice, which are on crop-year basis. <sup>2/</sup> Total may not add due to rounding. <sup>3/</sup> Boneless, trimmed weight. Chicken series revised to exclude amount of ready-to-cook chicken going to pet food as well as water leakage that occurs when chicken is cut up before packaging. <sup>4/</sup> Excludes shipments to the U.S. territories. <sup>5/</sup> Natural equivalent of cheese & cheese & other dairy products. Includes miscellaneous cheese not shown separately. <sup>6/</sup> Includes Swiss, Brick, Munster, cream, Neufchatel, Blue, Gorgonzola, Edam, & Gouda. <sup>7/</sup> Plain & flavored. <sup>8/</sup> Plain & flavored & buttermilk. <sup>9/</sup> Heavy cream, light cream, half & half, & sour cream & dip. <sup>10/</sup> Includes condensed & evaporated milk & dry milk products. <sup>11/</sup> Farm weight. <sup>12/</sup> Excludes pineapple & berry. <sup>13/</sup> Single strength equivalent. <sup>14/</sup> Includes rye, corn, oat, & barley products. Excludes quantities used in alcoholic beverages, corn sweeteners, & fuel. <sup>15/</sup> Dry weight equivalent. — not available.

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